

COTTONS,
LINENS,
WOOLLENS,
SILKS.

How to Buy and Judge Materials.

BY HY. B. HEVLIN.

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COTTONS,
LINENS,
WOOLLENS,
SILKS.

How to Buy and Judge Materials.



A USEFUL GUIDE WITH FACTS FOR
WAREHOUSE, SHOP AND HOME.



BY HY. B HEYLIN,

Author of

"COTTON WEAVER'S HANDBOOK,"
"BUYERS AND SELLERS IN THE COTTON TRADE," etc.



JOHN HEYWOOD LTD.,
PRINTERS, PUBLISHERS, BOOKBINDERS, &C.,
MANCHESTER & LONDON, E.C.



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CHAPTER I.

INTRODUCTION.

THE varieties and trade names given to woven textile materials have become so numerous, that sometimes there is a tendency for retailers and general users to get confused with their identification.

The trade definitions sometimes given to materials appear also to mislead, such as, for examples, "flannel," "Colonial silk," "mercerised silk," &c. In other instances, when nothing to the contrary is stated, or a fancy name is given to the article, there is an implication that a person will obtain the genuine material in its construction, such as pure silk, woollen, or linen. Some people will form their opinion of comparative values of materials by appearance and accustomed feel, they would scarcely think of any other method as an alternative.

The textile industries have now reached a highly-developed stage, and as competition in every branch of the industry has become severe—both productive and distributive—there often occurs a temptation for

some sellers to imitate and cheapen the production of a good article already on the market.

The retail traders are also generally anxious to obtain the cheapest article on the market, sometimes consistent with good quality, at other times without thinking about quality, but merely to offer a so-called bargain to the general retail user.

A stage is accordingly reached in buying woven materials, where one begins to wonder whether there is "value for money" and also whether a cheap article will ultimately become a dear one. Goods bought may not prove satisfactory for many reasons. They may have been sold without any particular guarantee as to quality.

It is the business of a merchant to suit the public taste either with superior, indifferent, or rubbishy articles. If a fancy name or word given to an indifferent article is sufficient inducement to encourage a person to buy that article, regardless of its superiority in quality, then the onus of selection for value received rests with the purchaser.

There is no sound reason to be adduced why draper, shirtmaker, tailor, milliner, dressmaker, householder, or fabric buyers generally should not have opportunities for obtaining further information respecting the principal textile materials in use without going too deeply into technicalities. On the contrary, everything points towards a demand in that direction. The object of this work is to supply that want as clearly and concisely as possible.

A natural conclusion one may come to, when a knowledge of the origin and construction of any textile material is known, is that greater interest will be evinced in the handling of the same. More important still, the opportunities for judgment and suiting one's buying requirements will be far greater than if devoid of such knowledge. To buy in the cheapest market and sell in the dearest is a counsel of perfection, but seldom attainable; however, as an alternative method, it is possible to ascertain which is the best material and what is being bought for a stated price. Then by good judgment in "buying" to obtain a commensurate return in "selling" or "using."

CHAPTER II.

TEXTILE FIBRES, THREADS, AND TEXTURES.

Woven or knitted textile materials are produced by an interlacing of threads, strands, or cords, to obtain a suitable texture for wearing apparel or other useful purposes in a convenient form.

A minute examination of these threads or strands individually when one is broken or ruptured, will show that it is constructed from very short, fine hair-like threads known as "fibres," which have been twisted or embraced together to form a continuous length of thread or strand. Raw net silk might be considered as an exception, as will be shown later, although sometimes it would appear to answer to the above definition of "fibre."

The chief fibres used in the construction of these threads commercially known as yarns, for manufacturing into textures or tissues, may be classified into two main sections, namely:—1. Those fibres obtained from the vegetable kingdom, as cotton, flax, hemp, jute, china grass, ramie grass, rhea grass. 2. Those fibres obtained from animals, as wool, hair (mohair, alpaca, horsehair), and silk filaments from the cocoon of silk worm.

Other fibres of more modern adoption like paper, artificial silk, viscose, or woodpulp, although not as extensive in demand, deserve due notice because they

are becoming more popular every day. Artificial silk especially so, which, in some cases, is supplanting "spun silk" and "mercerised" cotton.

"Mineral fibre" like asbestos is very seldom used for woven textile materials.

"Marine fibre" has also been used, but not made much headway.

Textile threads, strands, or yarns, constructed from cotton, linen, woollen, spun silk, and jute are formed by mechanical processes of spinning or twisting together a series of fibres, filaments, short ends, or other hair-like lengths into greater or lesser masses or bulk to suit the thickness or "counts" of the threads required. A cotton thread would be composed of "all cotton," a woollen thread "all wool," &c. A pound weight of raw cotton, as an illustration, can be spun to produce any length of thread, say from 8,000 yards to forty times this length, according to the thickness of the thread required and the quality, fineness, and length of cotton staple or fibre used.

The finer the fibres are, and the greater the number will be required grouped together in a cross section of the thread to be spun, in proportion to its thickness. For example, a cotton hosiery yarn of a certain thickness or "counts" would contain a greater number of fine Sea Islands cotton fibres of long staple in a cross section of the thread than would be the case if coarser or ordinary American short stapled cotton fibres were used in its construction. The former also would be a better-constructed and a more endurable yarn than the latter.

Anyone can perform a simple experiment to confirm

some of the aforesaid remarks. With a small quantity of cotton or wool fibre—cotton in preference—held in the left hand, gradually withdraw a portion of the fibres with the right hand, without disconnecting from the bulk. During the operation of withdrawing the fibres, roll or twist them between the right first or second finger and thumb, thereby interlocking them to form a continuous thread or strand. The strength, thickness, and feel (hard or soft) of the strand produced will depend upon the amount of twisting given to it, and the amount of “cotton” or “wool” fibres gradually withdrawn from the bulk. The “finer” the drawing process, and the more “twisting” will be required, also the greater will be the length of yarn produced, and if perfectly produced, obviously of greater value. The finer and longer the cotton staple, the finer will be the thread it is possible to spin. These remarks will also apply to the spinning of wool fibres, flax fibres for linen thread, and also the waste and raw silk filaments.

A simple experiment on an exaggerated scale, to prove that the number of fibres grouped in the cross section of a spun thread varies according to their individual thickness irrespective of the density or thickness of the spun thread, may be carried out as follows:—

Take a small tube or ring for a “gauge.” Fill it with a number of sewing cotton threads of the same thickness or “counts,” or with a number of uniform threads drawn from a piece of cloth. Count up the number required to fill the gauge. Afterwards repeat the experiment with finer or coarse threads of the same characteristics, and compare the results.

As a further experiment, the variable number of threads in each lot might be separately twisted in order to produce a strand of twine or rope and comparisons again made. Threads known as doubled yarns are produced by twisting together during an after process the "single" threads as above, thereby making a stronger strand. Threads of different thicknesses or a variable number of single threads may be twisted together, according to the thickness or strength of doubled or folded thread required, like sewing cotton thread, for example.

A woven cloth made entirely of "doubled" or "folded" yarns would be much stronger and more enduring than a similar weight of fabric made with "single" yarns.

At this stage it will be opportune to point out the meaning of certain descriptions of yarns used in textile materials.

A **woollen thread** is usually short stapled wool and is *carded* only previously to spinning into a yarn. The fibres are very much crossed in the thread without any pretext at straightening them out, which feature assists in after processes of milling and finishing by causing the fibres to interlock or mill together.

A **worsted thread** is usually made from a good quality of lustrous wool which undergoes the *combing* process previously to being spun into a thread or yarn. The short curly fibres are removed. The longer fibres are therefore laid parallel and in the cloth finishing processes they do not become interlocked, but assist in retaining the threads individually in the cloth texture. The difference in construction between the above two

threads is quite marked. A more lustrous, stronger, and uniform thread is produced in the worsted than woollen thread.

Wool noils are the shorter fibres, or waste wool staples, used for producing coarser yarns and lower qualities of cloth than are the longer and better wool staples, or "wool tops."

"Wool extract" is obtained from rags composed of woollen and cotton by a carbonising process. The extracted wool is afterwards worked up into low qualities of yarns for cheap woollen goods, like low-class tweeds.

Shoddy and **mungo** are terms used for woollen or worsted rags which may also have other fibre mixtures. These are all broken up together and by special processes re-formed into coarse strands for use again in the production of cheaper fabrics. Shoddy is made from the hard rags, and mungo from the soft rags or knitted goods.

Silk threads are used in three conditions :—

First.—Reeled or net silk from the raw material of the cultivated silk worm cocoon.

Second.—Spun silk or silk threads spun from the "waste" of raw or "net" silk.

Third.—Silk noil or re-spun silk from the waste and exhaust sweepings made in the spun silk processes.

Mercerised yarns are cotton yarns which have passed through a caustic soda treatment, thereby undergoing a physical change, and producing the lustre one is accustomed to seeing.

In many cases mercerised cotton yarns are selected in preference to spun silk, owing to being cheaper, but they are not as durable. There is no such article as “mercerised silk.”

Cotton waste cloths are produced with yarns spun from cotton waste.

The spun threads or strands are sometimes “mixed” or composed of different fibres such as :—(a) Wool and cotton ; (b) wool and silk ; (c) cotton and silk ; (d) cotton and flax ; (e) cotton and mungo.

These would be known as “union” yarns. Some Continental firms have gone to the extent of running together filaments of raw net silk and artificial silk for the production of “pure” net silk goods. This mal-practice *may* extend to our own country by way of retaliation to meet foreign competition.

In almost every instance a combination of fibres to make a thread in the above manner will be found to be for the purpose of cheapening the manufactured product. The higher the price of the more expensive material, the greater will be the tendency for competitors to adulterate the purity of the produced article wherever possible, by an increased admixture of the cheaper material.

These fibres would be mixed during some process of the spinning of the thread ; in some cases, however, two or more threads of different materials would be “doubled” or twisted together after the spinning process, sometimes to cheapen an article and sometimes to get a better effect. For example, a fine thread of spun silk will sometimes be found twisted or “doubled” with a worsted or

woollen thread forming the texture of a trousering, suiting, or dress cloth, to give a neat effect. This cloth might ultimately be cheapened, according to the amount of spun silk used, by substituting a mercerised cotton thread or artificial silk mixed in the doubled thread, in place of the real spun silk thread.

There also may be a combination of warp and weft yarns of different materials to form a texture similar to the following, namely :—

	<i>Warp.</i>	<i>Weft.</i>
(e)	Woollen	Cotton.
(f)	Cotton	Woollen, mohair, or alpaca.
(g)	Woollen	Silk.
(h)	Cotton	Silk.
(i)	Silk	Cotton.
(j)	Cotton	Linen.
(k)	Linen	Cotton.

For lower qualities of woollen goods the warp might be cotton and the weft “shoddy” or “mungo,” or for medium-priced qualities, a combination of good wool and “mungo.” The proportion of good wool, of course, being regulated by the price obtained for the cloth.

A Bradford “stuff,” “union” shirting or “lustre” would be composed of some form in (e) or (f), the general structure of the fabric and the class of the wools used giving the characteristics of the materials produced.

Other combinations for cheapening would be by using worsted, woollen, silk, or linen figuring threads mixed in some definite proportion warp way with cotton threads, and using cotton weft; the more expensive material, of

course, being mostly prominent, whilst the cheaper material will be less exposed.

Other methods of combination for cheapening might be given, but these should suffice for the enlightenment of the reader.

In some kinds of carpets like Brussels, patent tapestry, Axminster, or Wilton, the threads composing the textures may be of worsted, linen, jute and cotton for different parts of the fabric. The "pile" of course would be worsted.

"All wool" or "all silk" would mean that no other class of fibre constituted the material, but even then, as will be shown later, adulteration by "filling" can take place.

Again some low classes of "woollen unions" and "flannels" are little better than "flannelette," which is known and acknowledged to be all cotton. The former are made purposely to hoodwink the public, and a sale under such definitions would be neither more nor less than a "fraud."

There is much room in this direction for the application of the Merchandise Marks Act. To check the imposition, purchasers should see that a guarantee of quality is given on the delivery note or sale note on the purchase of such goods as "flannel."

If this is not done, and such terms as "twill stripe" or fancy stripe are written instead, the goods should be refused. Whilst the name of the honestly produced flannelette has been unmercifully traduced in some quarters by biassed individuals, goods tendered in the name of "flannel" without guarantee have been entirely

overlooked to the benefit of such makers, who have not only had the temerity to use this name, but, by doing so, they have obtained profitable prices for their goods which they never would have received if they had declared them to be anything otherwise.

The law which decided that Whitney blankets could not be made elsewhere than in this town has also declared, according to the "Wool Year Book" for 1912, that it is illegal to sell mixed goods as "all wool" or as "flannel," and that a clothier has been imprisoned for falsely attaching the name "Donegal" to tweeds. Furthermore, in 1893, a manufacturer was fined for describing knitted goods as "natural wool" which contained nearly 60 per cent of cotton. Prosecutions constantly take place against retailers for selling cotton and linen union goods under the description "linen," but with the exception above named very rarely does it come to light that a seller of spurious "flannel" is prosecuted. Judging from the quality of some low so-called "flannels," a "flannelette" maker only need direct a cotton spinner to mix indiscriminately a few stray wool fibres in his cotton, with instructions to loosely prepare and spin the thread to make it fibrous, for weft purposes, interweave it with a cotton warp, afterwards slightly raise the cloth, then sell it as "flannel." Needless to say the author does not advocate such a method of procedure. "Flannelette" is *not* "flannel," but "flannel" sometimes becomes almost "flannelette." Many articles for neckware, made from "artificial silk," in smart designs, are being innocently sold at the present time by retailers as "silk goods."

CHAPTER III.

CHIEF CHARACTERISTICS OF FIBRES AND THREADS.

Cotton.—The finest spun threads used for lace and hosiery yarns, sewing cotton threads and fine woven goods are chiefly produced from long fibres of Sea Islands or Egyptian cottons. Sometimes the finest grades of American cotton will be substituted for Egyptian cotton in some classes of yarns.

The ordinary grades of American cotton are used for what are known as medium spun yarns, of which the bulk of the woven cotton fabrics are constructed. Cotton yarns unadulterated are very pliable.

Indian cotton is used in England to a far less extent than American cotton for common and coarse spun yarns, to be put into common, coarse, and low-priced goods. It is a coarse, harsh, and rough yarn as a rule.

Under the microscope the ordinary ripe cotton fibre is very like a narrow twisted ribbon, or a thin collapsed spiral tube. It is easily distinguished from wool, silk, or linen. As a cheap commodity it possesses a valuable characteristic by having good dyeing properties, though somewhat different to wool. Unripe fibres do not possess the natural twisting in the length, and sometimes when dyed they disclose themselves in the form of lighter specks on a piece of cloth. The fine and long stapled cotton yarns are often used in the

production of fine goods like cambric handkerchiefs to take the place of linen. Cotton goods may be stored for a long time without undergoing any change. But when they are impregnated with "foreign" substances like starch, gum, or salts, which are put in during the processes of "sizing" the yarns or "finishing" the cloth, they are liable to mildew if exposed for any length of time to a moist atmosphere.

Physical Test for Cotton.—Cotton is very inflammable when a light is applied to it; for this reason it is inferior to wool, which does not continue to burn. After burning, a white ash will be left from the cotton. Also the microscopic test is a good one. Cotton is popular because it is useful and cheap in comparison to other textile fibres.

When the fibres of a thread from a fabric are pulled apart it will be found invariably that the finest and best fabrics possess the finest and longest fibred threads. The fibres of a thread from a coarse waste cloth will be of the shortest. The finest lace yarns in addition to the above will be found to be composed of two or more threads twisted together. When the price of raw cotton remains very high, in contrast to a previous "buying" season, it is customary in the home trade to reduce the *quality* of the woven material, to make it come in to sell at a fixed price. Sometimes an attempt will be made by unscrupulous persons to excessively adulterate the materials at these times, by "filling" or "sizing," to lead the retail buyers to believe that the quality is also "fixed" and has not been reduced, despite the high price of cotton.

If, when raw cotton remains high in price, as aforesaid, and no reduced alteration is made by a manufacturer in the quality of a cotton cloth, it invariably will be found that the coarser the threads of which the material is composed, the greater will be the proportional increase of price for that article in comparison to a finer woven material, although on the original basis of lower raw cotton prices both of them might have been about the same price.

One reason for this is because there will be a greater weight of cotton in the piece of heavier material, but less labour and expense involved in the spinning of the coarser thread composing it. With the finer material there will be a less weight of cotton in the piece, but the finer thread will have involved more labour and expense in its production. The price of the raw cotton will often fluctuate very considerably at some seasons more than others, but the cost of labour and other expenses in ratio to such may reasonably be considered as steady during all times. When the price of raw cotton has risen permanently, say to a halfpenny extra per pound weight ; and with 100 yards of cloth containing about 40 lbs. of unadulterated cotton, it would mean an extra charge of 20 pence if the goods were bought at that time. During the period covering the past five years, however, it will be interesting to know that the average price of raw cotton has been about $1\frac{1}{4}$ d. per lb. higher than the average price for the previous eight years' period. At some time or other during some part of the former period the difference in price has exceeded twopence per lb. The aforesaid 100 yards of cloth therefore, if now

produced exactly the same in respect to quality as previously, would become at the least 50 pence greater in price per piece, or at the rate of one halfpenny extra per yard. An additional charge would probably be made to this, to cover interest on greater outlay of capital, perhaps about sixpence on the piece length.

With respect to the finer material, by the same method of reasoning, assuming that 100 yards of cloth contains about 24 lbs. of unadulterated cotton, a halfpenny extra per lb. advance in the price of raw cotton would mean an extra charge of 12 pence on the piece length. With cotton at $1\frac{1}{4}$ d. per lb. higher, the extra cost of the finer material would be, if the same quality is retained as previously made—30 pence or 20 pence less in value than the coarser material. This is by no means an exaggerated view. With goods of wider width a greater difference might easily occur.

When the “selling price” has to be kept down therefore, with high ruling prices of raw cotton, it usually will be found that tampering with the quality or the greatest adulteration will occur in the coarse and heavy goods.

Without further unduly labouring this question, it might be added here that the above principles of reasoning with respect to price differences will also apply to all other textile fibres used in woven material.

Cotton is used in almost every class of textile material for clothing or domestic purposes.

Some of the popular kinds of goods in which cotton is used very largely are cotton dress goods, in the bleached dyed, and printed states ; sheetings, longcloths, Silesia

and Italian linings, cretonnes, dress cloths, and blousings with coloured woven yarns, shirtings, lenos, cambrics, lawns, cotton voiles, handkerchiefs, mufflers, muslins, casement cloths, flannelettes, brocades, awnings, cotton velveteens, corduroys, and fustians generally, Bolton sheetings, quiltings, toiletings, piques, towels, bedspreads, tablecloths, damask cloths, lace curtains, alhambra quilts, honeycomb quilts, &c.

The bulk of grey cotton goods produced are either bleached, dyed, or printed after leaving the loom. During this process they may also be "finished" in the pure state, or "assisted" to a medium extent by "filling" or "heavily filled" with adulterated matter.

For cheap and "showy" effects also, cotton is extensively used as previously mentioned, in combination with silk (raw and spun), worsted, linen, ramie, and other materials. Obviously in these instances cotton would predominate in the construction of the fabric.

Some classes of figured cotton muslins with Swiss embroidery in the form of spots of silk, or other material introduced may also be cited.

Figured muslins known as lappets are other examples. A large amount of mercerised cotton yarn, however, is now being used for the lappet ornamentation on the cotton muslin ground to cheapen the article.

Cotton vestings of a cheap kind have a small amount of dyed spun silk, worsted, or ramie of suitable colours introduced to liven up the design of a cotton woven ground texture.

Unlike "silk goods," there is no attempt to designate "cotton" fabrics by names doubtfully suggestive of the

purity of the cotton in the goods. Cotton being so cheap, the general impression will be that any material simply described as "cotton" will not contain the more costly silk or wool. That impression would probably be correct. It might, however, contain—as in some of the silk materials, and as previously mentioned—a large amount of adulterated matter, especially in the heavy materials. A good handful for little money in such cases is aimed at.

It might be contended that cotton fabrics containing "filling" would lose it after the first washing.

Granted this is the case, why then the necessity to adulterate the fabric with the filling? Unless it be to give the fabric a better selling "handle" or feel, and thereby often deceive the purchaser. Where "heavily sized" and "heavily finished" cotton fabrics are never washed, but are used till they drop in holes, there may be greater excuse for carrying on this nefarious practice.

The "filling," however, in some of the cotton fabrics as used in the home trade, is solely for the purpose of deceit. Take, for example, some classes of jeans and twills used for workpeople's overalls and slops. In many cases the "filling" is put into the yarns before the "weaving process." Also take heavy coarse shirtings known as "grandrelles." It is a well-known fact that with some careless people these fabrics when made up are often first worn without washing.

Moreover, the shirts are often worn next to the skin, in the belief that "flannel" underwear is not necessary, because the fabric feels so thick and heavy. It is not to be wondered at should a person contract a severe

cold, because the ingredients used to weight the fabric have the characteristics of absorbing moisture, part of which naturally will get to the body.

In regard to the slops and overalls, wherever the user comes in contact with heat there is also a tendency for the cloth to become "rotten," and wear into holes if the "filling" is not washed out before wearing. Why then should this deception be carried on? It is not due to the wishes of "manufacturers," the majority of whom would be glad if the evils were abolished. The malpractice has originated with the merchants' buyers. The public can stop it to a certain extent by insisting on having purely finished cotton goods. Other kinds are a nuisance to dyer, sizer, manufacturer, weaver, garment-maker, and washerwoman respectively. An article for the same purpose as above, if bought in a better quality and closer woven without adulteration of any kind, although of a higher price, would be more enduring and stronger, and prove to be the cheapest in the end.

Linen is spun from flax fibres. In characteristics it is similar to cotton, but stronger and tougher, though less elastic.

Under the microscope the fibre appears to have thickened parts or knots at intervals, similar to what one might observe on a bamboo cane, but scarcely as pronounced.

The twisted ribbon effect, as seen on the cotton fibre, is absent, which makes it easily distinguishable. The fibres on the average are also much longer than cotton.

It is superior to cotton for some purposes without a doubt. It is also more costly.

It has the reputation of being an absorbent fibre, and still possesses the merits of transferring moisture away quickly, say from the body if next to it. It is a rapid drier. One has only to consider the use of a handkerchief. A woollen one, although it would be warm and soft, is not desirable, and although some very fine texture cotton handkerchiefs can be obtained, they cannot compare with a fine linen one for easy and comfortable application to tender parts of the body. The merits of linen can be found in its uses for tablecloths, serviettes, towelling, collars, cuffs, underlinen, buckram, awnings, window blindings. It "finishes" beautifully with a fine gloss. The permanent gloss obtained on a well-laundered linen is unobtainable on cotton materials. Even mangling will impart a richness to a linen fabric.

Many attempts have been made to bring cotton material up to the linen standard in appearance, by special preparation of threads or in the "finishing" of the cloth. So far as one can see, linen for specific purposes still holds its superior position.

For many purposes linen towels are preferred to cotton. They are less fibrous or linty, and for this reason are often used for drying glass utensils after washing. When using some cotton towels for drying purposes much of the cotton lint adheres to the glass. In the case of a person with a stubby hair growth on the face also it will be found often that by using an indifferently constructed cotton towel after "washing," much of the lint will be left on the face. As a cheap substitute,

however, the cotton towelling is hard to beat when the threads are suitably spun to reduce the lint to a minimum.

Linen is not often dyed in fancy shades of colours, as is done with cotton, which is a disadvantage. A fabric woven with all linen yarns will be stronger and wear better than a cotton fabric similarly constructed. The first cost of the former, however, would be much greater than the latter.

This is one reason why strips of cotton cloth are used to pad a linen faced collar in order to cheapen the article. The low qualities of cotton buckram are only poor imitations of the linen buckram.

In some white specimens of cotton buckram it is necessary to "plaster" a starch mixture in the "finishing" process on the fabric, which is very perceptible, but nevertheless it answers its purpose for certain work.

Physical Tests for Linen.—Like cotton, it will burn when a light is applied, and also leave a white ash behind. There is also the microscope test. Linen yarns in a woven cloth are as a rule more irregular in thickness longitudinally than cotton threads. This remarkable feature may often serve to assist in detecting the difference between the two when woven into cloth. The fibres are also much straighter and stronger when separated in the thread than cotton. The threads also often snap sharp and clear when breaking them in the fingers.

Hemp is also similar in its fibre characteristics to the flax from which coarse yarns, similar to jute, are produced. The chief uses to which it is put are in the

making of sail cloths, Hessians, and ropes. In many cases hemp is supplanted by jute, owing to its being cheaper.

Ramie, China grass, and rhea are similar fibres to each other, which, when spun into threads, produce a lustrous effect. Effects resembling silk woven textures are produced with the finest yarns, and when dyed in delicate shades give a brilliancy comparable with silk. Several attempts have been made to substitute it for linen materials. The greater cost and difficulties of dealing with it in its preparation process have, up to the present time, prevented its extensive adoption as a commercial article. It is a very strong fibre.

Jute is of a coarse and rough nature with similar fibre characteristics to flax, but only used for rough purposes, such as bagging, mattings, carpetings, rugs, and in combination with other textile materials for some specific purpose. As a fibre for utilising in the production of woven textures for wearing or household uses, it is practically valueless with the above exceptions.

Jute is also used for making ropes and common twine. In some quarters it is also known as oakum. The "picking of oakum" is a penalty sometimes inflicted upon prisoners and tramps in casual wards. Jute has a tendency to become weakened when wet.

Wool is characteristically spongy, fibrous, and naturally curly and elastic. It is very hygroscopic, *i.e.*, it is capable of absorbing a large amount of water without appearing damp. Damp wool is not as liable to mildew as cotton. It is also about one of the easiest textile fibres to dye.

Under the microscope the external appearance of the fibre longitudinally is wavy and "scaly." This scaly structure adds to its value and greatly assists to interlock the fibres in the "felting" and finishing of woollen goods.

This characteristic also has a great influence on the shrinkage and thickening of woollen goods, either in washing, felting, or "finishing" in other ways.

The shrinkage of a pure woollen fabric from its loom state width to its "finished" width is considerably greater than for cotton goods.

When wool is steeped in warm water, it softens, swells up, and often becomes plastic. From these remarks, it will be seen that a closely constructed and warm fabric may be produced for general use. Hence its adoption for trouserings, suitings, shirtings, flannels, felt cloths, cloaks, overcoats, and other heavy goods intended for warmth. It will also be seen that the physical construction of a woollen thread does not allow of itself to be used with advantage in the production of distinct figured effects in woven goods.

Worsteds, as previously mentioned, although produced from "combed" wools, possess many different characteristics to woollens. There being a reduced tendency for the interlocking of fibres during "finishing" processes, the yarns become more suitable for producing figured woven cloths with a distinct outline of character.

Worsted

s seldom, however, appear so soft to the feel as do woollens; indeed they would appear to be harsh in comparison, but they may be considered as stronger and

more durable for the purposes to which they are applied, such as figured dress goods, lustres, mantlings, fine coatings, &c., and some kinds of carpets.

Alpaca hair, mohair, cashmere, and merino wools are often used for clothing generally, and also in combination with other materials, as previously pointed out, such as silk or cotton, for the production of dress goods, mantlings, braids, various kinds of plushes for upholstery work, hangings, and curtains. Horse hair is largely used in the manufacture of carriage seating cloth.

The method of preparing horse hair and the manner in which it is applied in the production of a fabric is entirely different to wool or cotton. It can scarcely be called a "fibre."

"Camels' " hair is used for belting.

Cows' hair for carpets, rugs, &c.

Rabbits' hair for hats.

In regard to "wools," there are many kinds in long and short staples, such as British, cross-bred, merinos, and Botany. The two latter are very soft wools. English wool is long and lustrous, Scotch wool long but rough, and said to be useful for carpets. Welsh wool is soft, and suitable for flannels. Shetland wool is soft and suitable for knitting purposes. Cheviot wool is used for Scotch tweeds.

Home-spun yarns are, as the name implies, woollen yarns spun as a domestic occupation. They are usually coarse and fibrous, and of their natural colour such as Irish homespun, Scotch homespun, Welsh homespun,

They are, however, now being imitated mechanically, and sold as "homespun."

Physical Test for Wool.—The microscope test is the best, as it is easy to distinguish its scaly appearance if mixed with other fibres. When a light is applied to the wool fibre or thread, it will gradually smoulder and die out unless the light is constantly kept in contact. A smell resembling burnt horn or feathers is given off, and a small bead-like and curly effect is left at the burnt end of thread or fibres. Hairs and pure silk will give the same test. By minutely separating the fibres composing the thread and carefully burning them, one can even detect the presence of cotton when mixed in.

By pulling and withdrawing the fibres of a thread apart, one can sometimes form a good idea from the length of "staple" whether a cloth is composed of good, poor, or indifferent material. Also, by taking a few threads between the fingers of both hands and "tugging" them, this will give some indication of quality from their weakness, strength, or elasticity. Some of the low classes of threads will be found to be extremely weak, owing to the fibres in the thread being very short and ruptured.

Silk.—When the filament or fine long thread has been obtained from the cultivated cocoon as previously mentioned, two or more of these fine long threads are "thrown," or "reeled" together by the silk spinner or throwster.

In this manner the various qualities of "organzine" or "tram" silk are produced. The former, which is

stronger, is mainly used for "warp" purposes, and the latter for "weft" purposes when weaving silk goods.

Under the microscope, silk is very smooth and transparent, like a glass rod, for instance. This accounts for the rich lustre in dyed shades obtained in silk goods.

The reeled or net raw silk is very expensive, and when used alone free from adulteration in pure silk goods it will only be within the reach of the wealthy. Silk plushes, velvets, satins, ribbons, trimmings, brocades, damasks, blouse and dress materials of high-class quality, bookmarks, handkerchiefs, and gloves being examples of light textures, considering the amount of material that is put into them.

This kind of silk is also used in conjunction with other expensive materials for smartening up the general appearance of a fabric, such as, for example, introducing silk spots or figures in white or rich colours on a good quality of cotton, woollen, or linen neutral coloured woven ground.

Goods described as "all silk," although they do not contain other textile yarns like cotton or wool, are often adulterated with heavy weighted dyestuffs, both in warp and weft, from 100 to 200 per cent. Experts declare that many silk fabrics will contain only one-third silk and two-thirds adulterants, and yet be sold as "all silk" material. Such material will crack in the folds and easily tear, and often after a few months storage will become rotten.

Goods described as "silk goods" are often mixed materials. During the course of an interesting lecture delivered before the Royal Society of Arts, Mr. Frank

Warner, the president of the Silk Association of Great Britain and Ireland, discussed in detail the question of trade terms applied to silk fabrics. Goods of heavily weighted dye, he said, are not only subtle in their deception, but their wearing qualities are undoubtedly inferior to those of all "pure silk" or of "pure silk" mixed with other yarns.

In regard to "silk goods" of mixed materials, Irish poplins are instanced, the material of which is composed of silk warp and woollen or worsted weft.

Silk velvets or silk plushes, providing they have a "silk pile," may have cotton backs. Silk linings may be either satin or twill faced made with a silk warp and cotton weft and yet be called "silk."

It sometimes happens that goods are offered and sold under the name of "silk" which are composed entirely of other yarns, such as mercerised cotton or wood pulp yarn, both of which have the brightness and glossiness of silk.

The opinion in the trade is that in any case where an article is described as silk, the warp should be silk, and that the article externally should be wholly or mainly silk, that is free from excessive adulteration in the dye.

Spun Silk, not being so expensive as raw silk, is extensively used for fancy coloured designs in combination with woollen, worsted, or cotton threads.

Many examples may be found among light and medium class dress goods and blouse materials, shirtings, tennis, lounge, cricket and boating shirts, sleeping suits, Ceylon flannels, trimmings, high-class cashmere shirtings and tunics, mufflers, gentlemen's vestings,

high-class suitings, trouserings, and fancy hosiery goods.

The main object in introducing it under the above circumstances will invariably be found to be to smarten up the general appearance in effect or design in a similar manner mentioned for net silk in better class goods.

A large quantity of spun silk, after being produced in a single thread, is afterwards "doubled" or "folded," and used for "warp" purposes as above in a variety of dyed shades. In other cases the "folded" yarns are used for sewing and embroidery purposes, such as "filoselle" in place of "raw silk threads."

Tussah or Tussore silk fabrics are made from the silk threads of the wild silkworm, usually being composed of the "spun silks," as distinguished from the "net raw silks."

The difference in prices sometimes between "spun silks" and mercerised cottons would appear with many people to be the only means of telling one from the other.

This uncertainty, therefore, at once suggests a better means for identification, to avoid imposture, because when mixed with other materials in a woven texture mercerised cotton yarn is more difficult to detect.

Where cheapness is essential, mercerised cotton yarns have supplanted the "spun silk" yarns, whilst in other instances artificial silk has been used.

Silk Noil is a very common waste spun yarn, rough in appearance, and very weak considering its density. It is occasionally used for introducing into materials used in the British home trade for low class woollen

goods. It is extensively used in coarse threads, for dyed bright striped colours for the West African markets.

Physical Test for Silk.—For pure silk the burning test is the same as given for wool.

If the “silk” is adulterated with filling or weighting matter, after the light has been applied the mineral matter will be left in the form of an ash. The decided bead-like curl and pungent smell given off by the pure silk test is absent. The microscope test is also a good one, but sometimes one might become confused with artificial silk. If the filaments in the silk thread are very fine and exceedingly long, and cling to the fingers when pulling apart, when there are also a number of filaments running together to form a single thread without much “twist” in them, this will be pure raw or net silk. Spun silk will be composed of short silk fibres.

Artificial Silk made from wood pulp and other materials is extensively used for the making of woven fabrics, in which strength or hard wear is not required, such as trimmings for hats, ribbons, braids, neck and collar ties, rosettes, fringes. Attempts are now being made to introduce it into light wearing blouse materials in combination with cotton yarns as a substitute for spun silk or mercerised figured effects on woven cotton ground textures.

Wood Pulp and **Paper Yarns** are used in the making of heavy materials. The yarns—if one may so term them—are loosely and coarsely constructed. They may be used for mattings, bagging, canvas cloths, light

30 CHIEF CHARACTERISTICS OF FIBRES AND THREADS.

carpetings, hand bags, and even wearing materials such as men's suitings have been produced from them.

Their water absorbent properties, however, are very great, which feature appears to temporarily weaken the fabric during the time it is wet. When dry the strength is regained. There probably will be wider scope for the use of these materials as their merits become better known.

CHAPTER IV.

WEAVING.

Weaving is the art of constructing a texture, by the interlacing of strands or threads of various thicknesses one with another in order to form a broad sheet, fabric, or cloth of variable widths and lengths. The two extreme edges in the width are known as “selvedges” or “listings.”

Two sets of threads are used for the purpose, known as warp and weft.

The warp threads, or “twist” yarn, run lengthways in the woven fabric, and the weft threads run crossways, or at right angles to the warp threads, from one selvedge to the other.

The weft threads, usually spoken of as “picks” or “shots,” are carried across and interlaced with the warp threads between the two

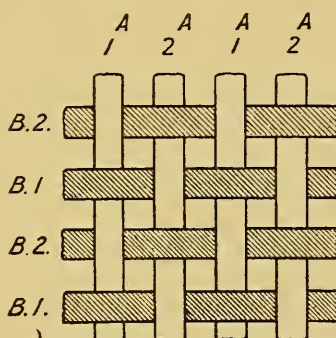


FIG. 1.

selvedges, by means of the shuttle, in which the weft is placed, either in the form of a “cop” or on a “pirn” bobbin or spool.

Fig. 1 shows diagrammatically the simplest method of interlacing warp threads with weft threads, known as plain or calico weave, A representing the warp threads and B the weft threads. Fig. 2 shows the woven cloth.

The warp threads are usually stronger, harder twisted, and of better material than the weft threads.

For the purpose of assisting in the operation of weaving, the warp threads are slightly "sized," even for fine goods, but the "sizing" is not excessive, as will be the case with "heavily sized" or "heavily finished" *adulterated goods*.

The width of a cloth is determined by the total number of warp threads between the two selvages and their closeness in the fabric.

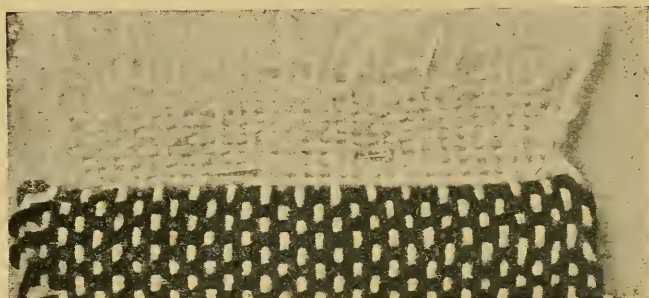


FIG. 2.

The length is that which is considered to be the most useful and convenient.

The selvedge or listing on each side of a cloth protects the sides and fabric generally, not only in and out of the loom, but also in the processes of bleaching, dyeing, printing, or finishing. They often will be made of a different colour to the body of the cloth and with stronger threads.

Quality.—The number of threads per inch warp and weft way and the thickness of the threads are the chief factors in determining the comparative strength and

quality of a cloth, irrespective of the value of the material of which it is constructed. The thickness, closeness, or material used in the *selvedge* threads do not constitute the quality of cloth.

By means of a process called "warping," the warp threads—which vary according to quality of cloth—would be run in parallel order to a definite length, and afterwards run together in a broad coiled sheet of threads on to a weavers' beam, ready for the loom.

If the threads per inch are reduced or the total threads in the weavers' warp are reduced for the same width of cloth, a lighter fabric by weight and weaker in strength will be obtained. If, however, the same number of warp threads were retained in the width, but finer threads used, a lighter and weaker fabric would again be obtained. But if coarser threads were used, or the threads were put closer together, then a heavier and stronger fabric would be produced.

These remarks will also apply to the closeness and thickness of picks and yarns respectively.

The thickness or fineness of a thread is spoken of as its "counts."

By a re-arrangement in the proportion of "warp" threads and "picks," and in the thicknesses of the yarns used, a variety of cloth qualities may be produced.

The closeness of the warp threads in the cloth is regulated and determined by the "reed," which is like a steel comb enclosed in a frame and fixed in the loom.

The closeness of the weft threads or "picks" in the cloth is mechanically regulated and determined by a "take-up" motion on the loom.

The particular manner in which the warp threads

shall interlace with the weft so as to form a "weave," or to produce some definite design is effected by "healds" or "heddles," which, in their turn, are operated upon by "tappets" for plain or other common weaves, or pattern-producing mechanism similar to the dobby machine for figured work.

The warp threads from the weavers' beam are individually "drawn in" or passed through looped eyes in the healds, and then passed through "dents" in a reed previously to the warp beam being taken to the loom for weaving.

For the production of floral or other ornamental woven designs like brocades, damasks, tapestries, &c., the Jacquard machine would be employed in conjunction with the loom.

The plain cloth or calico weave is the most common and simplest method of interlacing. Two sets of the aforesaid healds would be required to produce it mechanically.

The common method of "darning" is a "plain weave." What is done in this instance by the hand and needle is mechanically performed when weaving cloth, by the weaver's shuttle in combination with a series of movements of threads automatically controlled by means of "healds" actuated by "tappets."

Referring to Fig. 1, (a) is spoken of as warp way, (b) is spoken of as weft or pick way. Any particular system of interlacing warp with weft is called the "weave."

The "weave" for a plain cloth will be seen to be on two warp threads and two picks.

It may be taken for granted that as many sets or

shafts of healds will be required to produce a weave or design as there are distinct interlacings of warp threads with weft threads.

Take, for example, Fig. 3, which represents a three-end twill weave. Three distinct positions are shown

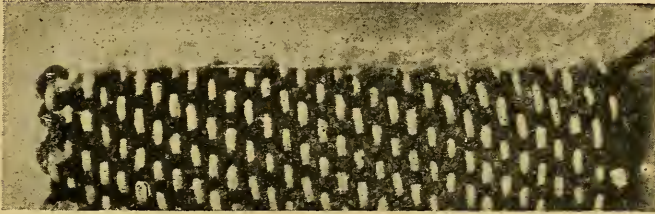


FIG. 3.

of warp threads interlacing with weft threads. The consecutive intersections form a diagonal line or twill on the cloth surface. The manner of interlacing is over two picks and under one repeatedly.

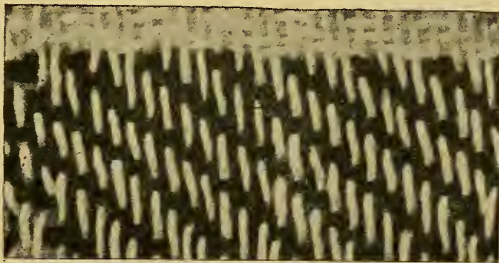


FIG. 4.

Fig. 4 shows a weave for a four-end twill three warp, and one weft, sometimes called a "Florentine twill." It would also be termed a "warp twill." The order of interlacing warp with weft is also in diagonal form. This gives a ribbed or "twilled" appearance on the cloth

surface. It will be seen that every first and fifth warp threads interlace alike, also, the first and fifth weft threads or "picks." Each warp thread passes over three weft threads and underneath one repeatedly. A four-end weft twill would be the reverse to above, that is, the greater portion of the weft threads would form the weaving surface of the fabric.

Fig. 5 is another method of interweaving on four warp



FIG. 5.

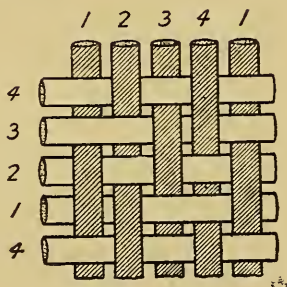


FIG. 6.

threads and "picks," known as a two warp and two weft twill, sometimes called a "Harvard twill" or "sheeting twill." The warp and weft threads float equally on both sides of the cloth.

An irregular weave, as Fig. 6, may be produced by a re-arrangement in the interlacing of the warp threads of Fig. 5. This is sometimes termed a "stockinette" weave.

A "satinette" weave would be obtained by re-arranging the warp threads of Fig. 4 in a similar order to the "stockinette."

Sateens.—The common cotton sateen cloth is produced on five threads and picks. A "warp sateen" would show four-fifths of the warp threads on the surface of the fabric, and four-fifths of the weft threads behind, as Fig. 7A and Fig. 18, thus hiding the weft except at the intersecting points. Fig. 7A diagrammatically illustrates the weave.

A "weft sateen" would show four-fifths of the weft

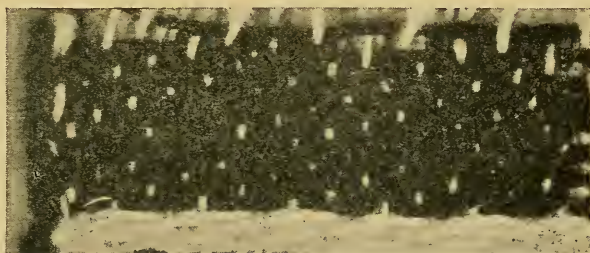


FIG. 7.

on the surface and four-fifths of the warp threads behind, as Fig. 7, thus hiding the warp except at the intersecting point. The object sought is to get a smooth cloth surface by distributing the interlacing points, and so destroying the common "twilled" effect.

A "warp sateen" will be much closer in the "warp threads" to form the texture than will be the weft threads, and therefore stronger in that direction. A weft sateen will be closer in the "weft threads" or "picks" than will be the "warp threads," and also stronger in that direction.

Fig. 7B diagrammatically illustrates the manner in which the weft threads interlace with the warp threads as shown in Fig. 7.

It will be noticed that the recurrence of the same number opposite warp and weft threads is the commencement of a "repetition." The term "satin" is usually applied to silk goods for the same method of interlacing.

When and How the Foregoing Weaves may be Used.—

The preceding examples may be considered as standard weaves, and comprise the foundation structure of the

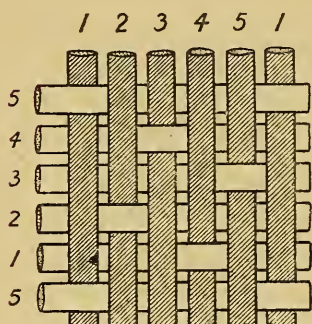


FIG. 7A.

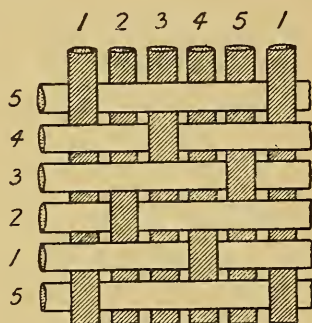


FIG. 7B.

majority of woven fabrics, either in their simple form or in combination with other weaves, to produce figured and striped designs.

When a cloth is wanted light in weight, but of firm structure, the plain method of interweaving is used. A limit, however, is reached in a plain cloth, when it is not possible to weave the warp threads and picks sufficiently close; consequently recourse must be had to some other method of weaving. The number of intersections will then be reduced in proportion to the given number of warp threads and picks, thereby

enabling the warp and weft threads to lie closer together, and so produce a heavier and thicker fabric. The weaving qualities of the fabric, however, will be lessened or increased according to the number of intersections and closeness of threads.

A very simple way is sometimes adopted of running two or three threads together through a heald eye and working as one in the cloth with the plain weave. Another method would be to put two picks together in one

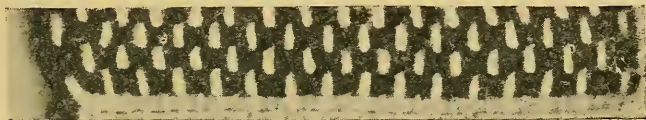


FIG. 8.

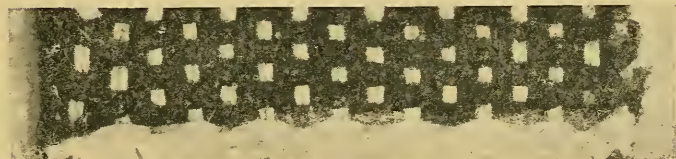


FIG. 9.

“shed” for weft, either with a single warp thread or double warp threads as shown at Figs. 8 and 9 respectively. Fig. 9 would be called a “taped” or “matted” weave.

“Weaves” such as the three or four end twills and five end sateens offer greater scope for producing fabrics with increased warp threads and picks in a given space. On an equal basis for thickness of yarns used in a fabric, taking the above weaves, the five thread sateen would allow the greatest number of threads to be closely woven

together. Accordingly, with the sateen weave it would be possible to produce the heaviest fabric. Although the five thread sateen is the one mostly used, other sateens can be produced also on any number of threads above five. It will, therefore, be obvious that the greater the intervals between the intersecting points of warp with weft, the less will be the resistance in weaving when attempting to increase the closeness of warp threads or weft threads in a cloth. The weaves in many kinds of woollen goods are not recognisable after undergoing the milling and "finishing" operations.

Further examples of "weaves" and cloth description are given in the "Cotton Weavers' Handbook."

A few simple and common methods of utilising the weaves previously mentioned are shown in the following block prints, Figs 10 to 18.

The direction in which the twill is shown to travel is for the face side of cotton cloths. It will run in the opposite direction for woollen and worsted goods.

REFERENCES TO BLOCK PRINTS, FIGS. 10 TO 18.

- Fig. 10.—Zephyr Stripe—Plain ground weave with cord lines.
- Fig. 11.—Repp or Poplin Weave—Plain ground weave.
- Fig. 12.—Oxford Striped Shirting—Taped ground weave, with "stitch" weave for the fancy coloured stripe.
- Fig. 13.—Coloured Matting Stripe—Taped ground with "stitch" weave for fancy stripe.
- Fig. 14.—Galatea Stripe—Three end twill ground, with stitching threads.
- Fig. 15.—Striped Drill—Three end twill weave.
- Fig. 16.—Harvard or Two and Two Twill—Four end twill. Sometimes called "cassimere" twill.
- Fig. 17.—Figured Harvard Twill—Four end twill ground with figuring threads.
- Fig. 18.—Warp Striped Sateen—Five end broken twill,

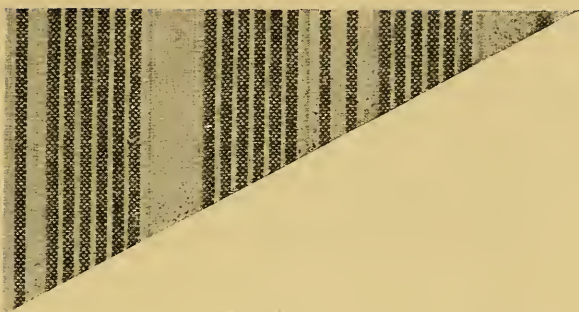


FIG. 10.

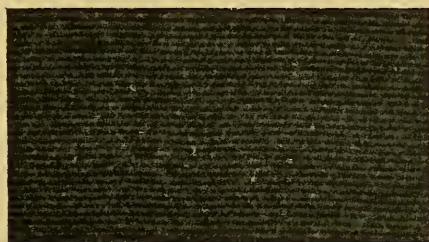


FIG. 11.

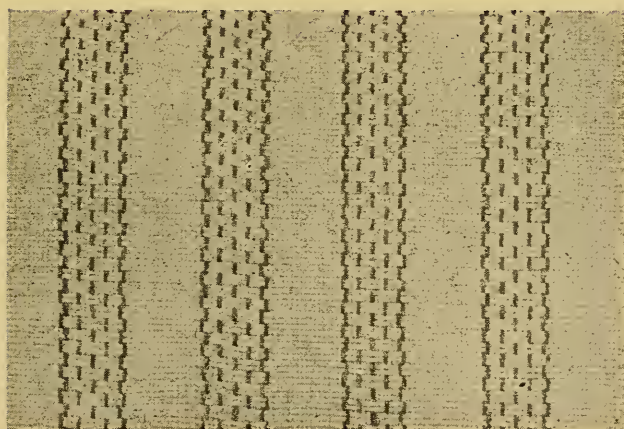


FIG. 12.

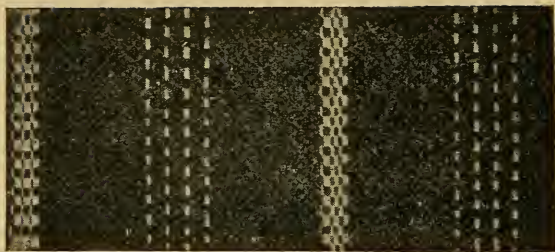


FIG. 13.

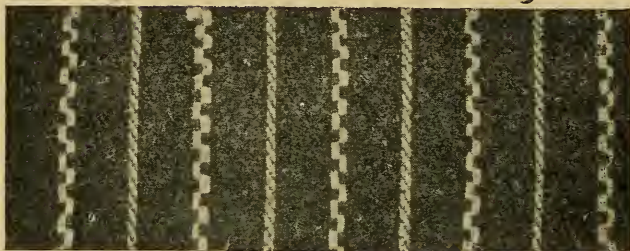


FIG. 14.

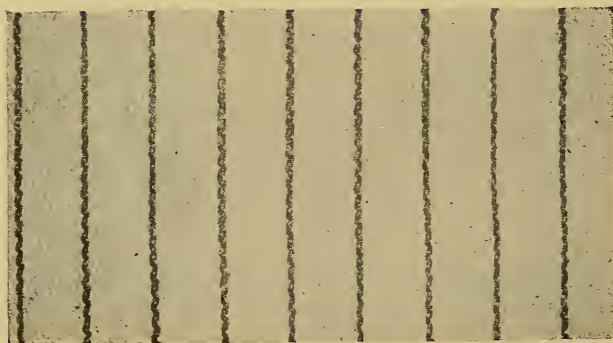


FIG. 15.

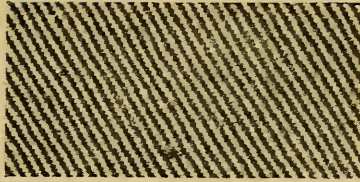


FIG. 16.

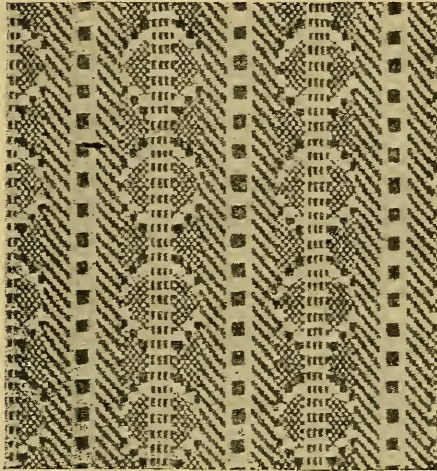


FIG. 17.

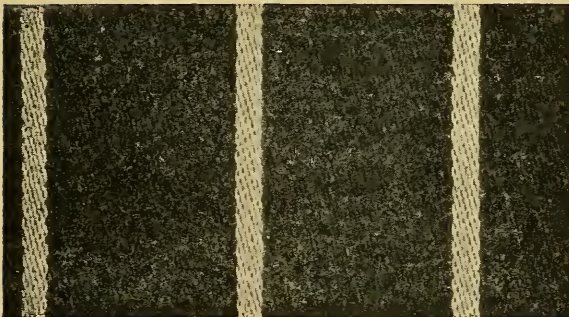


FIG. 18.

CHAPTER V.

FIGURED FABRICS.

Extra Warp Figured Cloths.—All previous examples mentioned being produced from a combination of one warp and one weft, are known as “single cloths.”

When figuring threads are introduced for the purpose of ornamentation on the surface of a plain ground

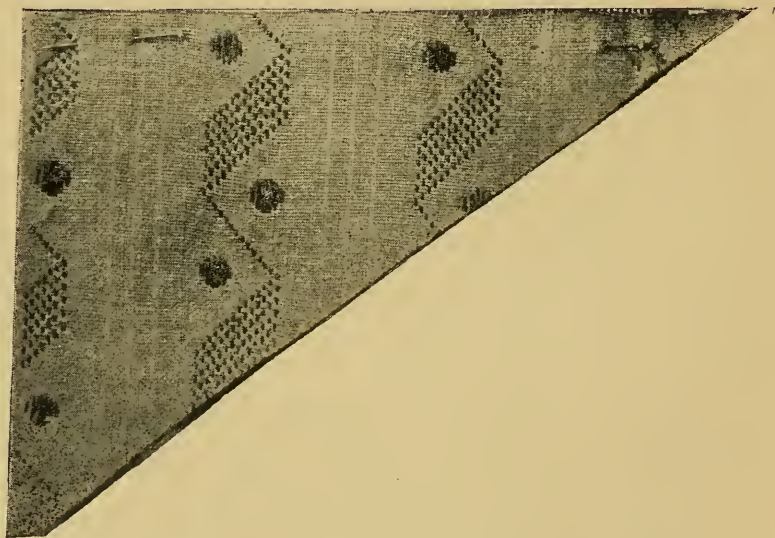


FIG. 19.

structure, or on other ground structural weaves, and afterwards allowed to lie loosely or float underneath the ground cloth structure, they are called “extra warp” figured cloths.

Fig. 19 is an example of a figured cloth produced by the author in this manner, where it will be seen that the figure threads, when not required, pass underneath the plain ground structure.

Similar figures to these are sometimes formed with the weft instead of the warp, and are then known as extra

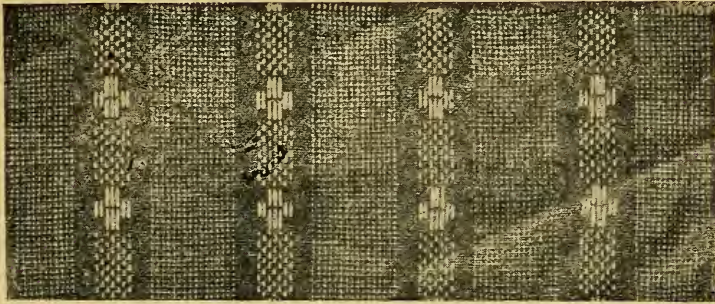


FIG. 20.

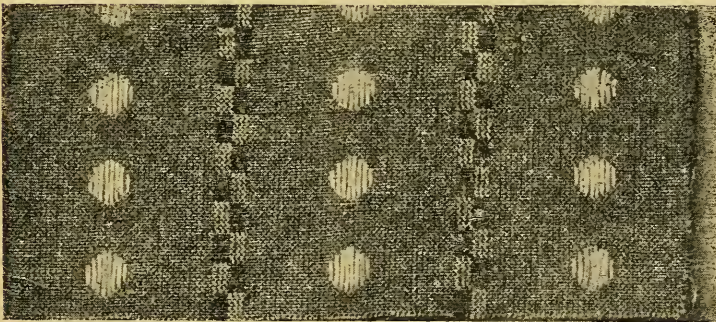


FIG. 21.

weft figures. The most elaborate effects, however, are produced by means of the extra warp effects. It is

also a cheaper way of producing fancy figured cloths than by extra weft. Examples of such weaving may often be found in high-class fancy gentlemen's shirtings and ties, ladies' blousings, dress materials, trimmings, and ribbons.

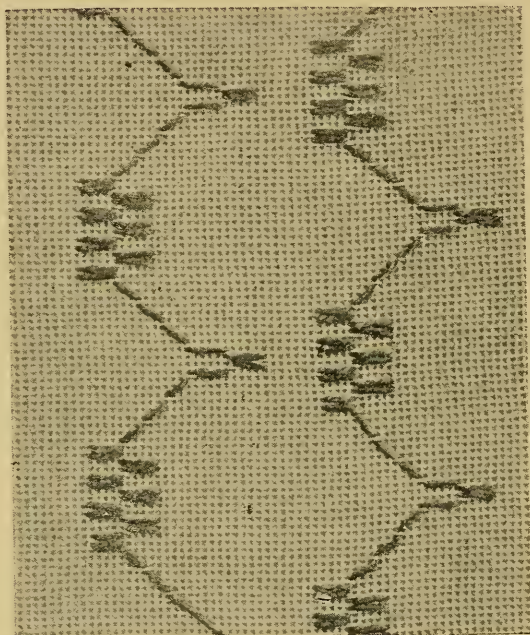


FIG. 22.

Figs. 20 and 21 are further examples of "extra warp" figured cloths on a plain ground structure. Fig. 21 has also another fancy woven stripe introduced.

Lappet Figured Muslins can be identified by the method in which the figuring threads or "whip yarns" are interwoven with the ground structure of the fabric.

The peculiarity of this class of woven cloth is that the figuring material is stitched loosely on one side of the cloth only as illustrated by Fig. 22. The fabric is not *reversible*. The thinner vertical and horizontal lines represent the warp and weft threads respectively of an ordinary plain muslin cloth. The thicker and bolder threads are the “lappet” figuring threads working in

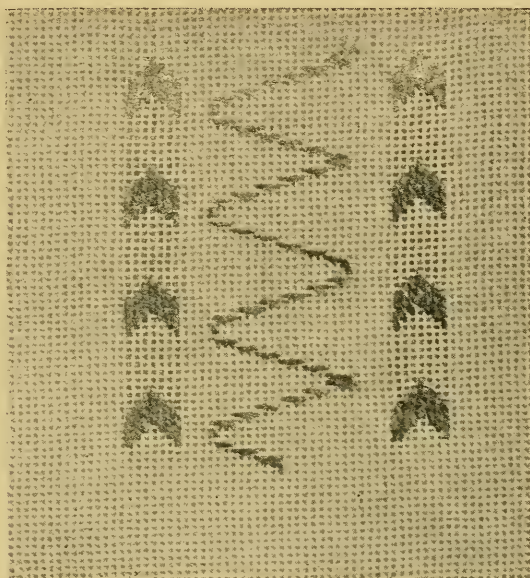


FIG. 23.

the direction of the warp threads and interweaving with the weft in a lateral manner, either to form some “crazy” or “set” pattern. The “whip yarn” thread is fastened with the weft on *one pick at a time* only, in a similar manner to that occasionally practised in some kinds of embroidery work. Ornamentation of this character is accomplished by a special mechanism to a power

weaving loom. The lappet "whip yarn" is often composed of a good quality of folded "cotton yarn," "mercerised cotton," or "spun silk."

Fig. 23 shows an example of extra warp figure and lappet combined.

Swivel figures.—High-class cloths are often ornamented with swivel spots and figures which are easily distinguished from the lappet or extra warp figures. In this style the figure is interwoven with extra weft by small shuttles into a ground cloth structure.

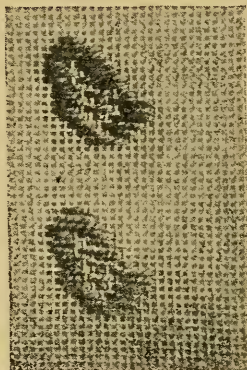


FIG. 24.

Each figure will be found to have its own short pick of weft independent to the weft pick forming the ground structure or body of the fabric.

The figure threads are well bound into the cloth, the bulk of the material being on the surface. Where no figure is required in the space between, the shuttles remain idle in the loom, and the single swivel thread from each shuttle joining the swivel figures is often cut away. This is rather an expensive method of producing

figures, but is very effective for obtaining good and pleasing designs in good qualities of woven materials.

Many examples may be found in silk woven goods and ladies' trimmings. Also where a silk figure is required on a cotton or worsted fabric. By this means a waste of expensive silk material is avoided.

Fig. 24 is a simple illustration of a "swivel spot" woven on a plain ground structure.

Swiss embroidery, or machine embroidery, is an after-process of weaving, often produced on muslin cloths in the form of spots and sprigs. Sometimes they have a resemblance to lappet spots.

There is, however, a distinct difference between the two. In the Swiss embroidery spot it will be found that the yarn forming the spots has an equal amount of material on both sides of the cloth, thus making the cloth reversible, and the spots solid. In lappet cloths the figure only shows on one side, therefore the cloth is not reversible for showing the pattern.

Figured embroidery of a more elaborate and artistic kind is done by a special embroidery machine, which suggests a combination of Swiss embroidery and needlework. This kind of work may be found on ladies' muslin blouses, light underskirts, and robes and flounces for robes, which have both small floral figures after the manner of Swiss embroidery and perforated designs in which the inner edging of design is stitched round like needlework.

Ordinary fancy canvas embroidery and crewel work practised as domestic occupations, are so well known

that they will readily be distinguished from the aforementioned examples.

Madras curtains are produced by means of a Jacquard machine and loom. The open ground structure is a gauze weave, and the figure is produced by the insertion of an extra coarse thread of weft between each fine ground weft thread. Where the thick weft threads do not form figures they will lie loosely between their two nearest intersecting points. The loose material will afterwards be cut away as waste.

The gauze or twisted weave of the ground structure allows the figuring weft to be firmly bound into the fabric, thereby withstanding any wearing or pulling action that it might be subject to.

CHAPTER VI.

PILE FABRICS.

Pile fabrics are of two distinct kinds, viz. :—(a) Those in which the threads to form the “pile floats” or “flushings” are produced with the weft threads—which are afterwards cut—additional to, and on a firmly constructed woven ground texture. The latter would invariably form a good “backing” to the fabric. (b) Those in which the threads to form the “warp pile” or loops are produced with special “pile” warp threads additional to the ground cloth structure. The largest variety of “pile” cloths made in the cotton trade belong to class (a).

Velveteens, corduroys, and various other classes of fustians are examples.

In these instances the “float” is cut and sheared in the after processes, thereby allowing the firmly interwoven massed fibres or closely set short flushing threads to issue at right angles to the ground cloth structure. During the cutting operation the ground structure of the fabric remains intact, thus forming a good “backing.”

The “backing” method of interlacing varies, such as “plain” or “tabby” back, “Jeanette” back, “Genoa” back, &c.

In respect to trimmings and ribbons with a “silk pile” velvet face, they may have a satin back composed of silk warp threads and cotton weft threads.

Warp pile fabrics comprise both (c) loop or “uncut pile,” like turkish or terry towels, Brussels carpets, patent tapestry carpets, and (d) “cut pile” like warp silk pile velvets, ribbons, and warp pile plushes, made from silk, mohair, &c.

The length of “terry” or “loop pile” together with the closeness and thickness of the threads will vary according to the quality of the fabric produced. Usually, the longer the “pile” on the fabric and the better will be its quality. The “loop pile” on Utrecht velvet, and many kinds of carpets is produced by means of wires being inserted during the weaving operation.



FIG. 25.

Fig. 25 shows in section the principle of construction for an ordinary wire “warp pile” fabric, one loop being shown uncut and the other cut.

Cut and uncut “loop pile” may be formed on the same fabric, by using cutting and non-cutting wires as desired. The cross shown on Fig. 25 indicates where the “loop pile” would be cut.

HOW TO DISTINGUISH CUT “WARP PILE” FROM CUT “WEFT PILE.”

If “warp pile,” when a few “picks” or weft threads are drawn out separately from the fabric, the loose bits of “cut pile” threads are shown entangled or looped with some of the drawn weft threads. For experiment

a common silk velvet trimming ribbon may be taken. By drawing out the weft threads separately from selvedge to selvedge, it will be seen that invariably each alternate weft thread will have the loose bits of "cut warp pile" attached. In a very closely woven "warp pile," it is possible for *every* weft thread that is withdrawn to have the loose bits attached in the aforesaid manner.

"Silk velvets" are often produced with "warp pile" by means of looping wires. The withdrawal of the wires cuts the loops and thereby forms the velvet surface.

If "weft pile," when the weft threads are withdrawn as described for "warp pile," the bits of "cut pile" would not be looped round the drawn weft thread, many of the bits of "cut weft pile" would be left among the remaining warp threads loosely entangled. If, however, a few *warp* threads are withdrawn separately, it will be found that every alternate warp thread, as a rule, will have the bits of "cut weft pile" attached or looped round, in a similar manner to the bits of looped warp pile round the weft as described for warp pile.

The common velveteen, which is "all cotton" will be identified as a weft pile in this manner.

CHAPTER VII.

COMPOUND FABRICS.

Compound fabrics embrace all those classes of cloths in which more than one warp or weft take part in their texture. The objects sought in their construction is to produce a heavy fabric unobtainable by any other method. The simpler kinds known as "backed" fabrics have one side of the fabric often of a different "weave" to the other which might serve as a "lining." The backed fabrics may be either (a) Double warp-faced,



FIG. 26.

or (b) double weft-faced ; that is, for class (a) the fabric would have a warp surface on both sides and the weft hidden between, like a double warp-faced satin ribbon, for example, in which the weft might be cotton and the warps silk. For class (b) the method of construction would be the reverse, as suggested by the name.

Some of the fabrics made in this manner and also similar to Fig. 27 would be reversible, such as golf capes and travelling rugs.

Fig. 26, which is taken from the "Cotton Weavers' Handbook," illustrates, in section for two picks, a double weft-faced fabric. The face would be called a

four warp and four weft weave, and the back an eight-end twill.

Other examples of this kind of weaving may be found where cheapening the material is desired, such as using a cotton warp, with a double weft-faced worsted or woollen weft, or cotton weft, with a double warp-faced silk warp, in many kinds of trimmings and ribbons.

Ply Fabrics.—The more intricate compound fabrics comprise two ply or double-cloth weaves, three ply, four ply, and sometimes a higher number still. Examples of two ply fabrics may be found in tubular cloths like bagging, pillow slips, bolster casing, lamp wicks, tapes,

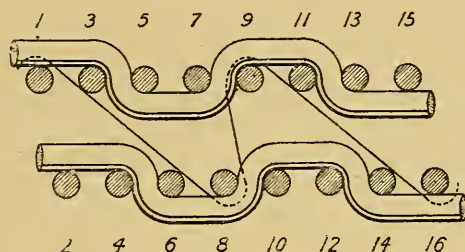


FIG. 27.

washing ties, galloon tape binding, which system obviates afterwards the joining together of the selvages. In the more advanced ply fabrics such as mantling cloths or travelling rugs, two woollen fabrics may be “stitched” together in the loom with a cotton warp, to form a thick fabric without necessarily being tubular.

It is a common occurrence to introduce a cotton “stitching” warp in a heavy woollen material to reduce its cost, similar to Fig. 27. Here two twill woollen fabrics are stitched together by the cotton warp thread shown between, but hidden from view in the cloth,

Reversible tubular fabrics, heavy belting, woven hose piping, and Venetian blind ladder tapes are other examples of three and four ply fabrics.

Mechanically woven tapestry fabrics, satin toilet quilts, and other figured woven fabrics are more elaborate examples of compound fabrics. For a detailed description of all classes of these fabrics see "The Cotton Weavers' Handbook," from which Fig. 27 has been taken.

CHAPTER VIII.

TAPESTRIES.

The real tapestries, usually depicting historical, allegorical, or scriptural events are made by hand. They are costly to produce, and require great skill on the part of both the weaver and artist. The warp is usually wool, and of one colour, sometimes linen or cotton warp will be used, but the figures to form the "design," worked from a "cartoon," are obtained by the insertion of a multiplicity of weft colours in wool and silk.

The interlacing by hand of the variously coloured wefts separately with the warp threads in "plain weave" calls forth great patience and careful manipulation on the part of the weaver. When completed the products are works of art. Fine old examples may be seen as art treasures in many old halls and mansions both in Great Britain and on the Continent of Europe.

In Great Britain—Hampton Court, Windsor Castle, Haddon Hall, Holyrood Palace, and Victoria and Albert Museum, South Kensington, still bear witness of such examples.

The productions of the Gobelins tapestries by the French Government also furnish splendid examples as works of art in drapery, hangings, and upholsteries and pictures.

Although this class of tapestry is still produced, it is costly and only within the reach of the wealthy ; it therefore cannot be considered as a popular commercial product.

TAPESTRIES OF COMMERCE.

The so-called " tapestries " of commerce are imitations of the above kind, and are produced by means of a Jacquard machine, fitted on to either a hand or power weaving loom. The perfection in the mechanism of weaving machinery has now reached such a high stage that many fine examples of old tapestries may be imitated by means of the power weaving looms. The distinct difference between the old " hand frame " and machine woven tapestry is that in the former the coloured designs are produced by the insertion of short lengths of coloured weft material without restriction, and no waste of material, whereas in the latter the coloured weft, which is automatically inserted by means of a shuttle, must pass across the entire width of fabric, even if it is only required to interlace with the warp on a few threads. That portion of the weft not required to form pattern has to be dealt with in some way, it therefore must either interweave with other warp threads which form a backing to the fabric without interfering with the face pattern, or else it is allowed to lie loosely and hidden between other threads behind the face of fabric until it is inserted again in those warp threads to which it must interweave to form pattern, in its passage from selvedge to selvedge of the fabric.

The weft colours which may be used in a " power-loom

woven " tapestry therefore are limited in comparison to the old hand frame method. About six colours would be the maximum useable. The additional colours, however, required to produce the desired effects are put in the warp threads; by this means unlimited scope is obtained for colour combinations. An article produced on a commercial scale soon creates competition, hence we find that for the purpose of cheapness many specimens of commercial tapestries and imitation commercial tapestries are offered in the market. Tapestry curtains, hangings, cushion covers, bedspreads, mantel-piece borderings, tablecloths, upholstery cloths, pictures, table mats, sideboard cloths, will furnish material evidence of a variety of methods to designate such productions as " tapestry."

Some common imitation tapestry cloths are woven with a few colours in the warp of a " floaty " nature, and only one colour of weft.

Others will have only one colour of warp and several colours of weft of a " floaty " nature (from two to six). Sometimes tapestries are spoken of as one, two, three, or four colour tapestries, &c. The best power loom " tapestry " cloths are those which have many colours in both the warp and in the weft.

In tapestries produced by weft colours, known as " weft tapestry," the one coloured warp may be cotton, and the weft silk, worsted, woollen, or other material. If two colours of weft were used the fabric might be termed a two colour tapestry. Those produced by warp colours and known as " warp tapestry," might be the reverse, or cotton both warp and weft. It may be

accepted that in many expensive fabrics where there is a combination of materials such as silk and cotton, or wool and cotton, &c., the objective will be to hide from view the cheaper material, which in these instances would be cotton. Specimens produced by a few differently coloured warp threads and one coloured weft only in comparison to similar materials and manner of weaving would be considered the cheapest form of tapestry.

With many people some kinds of tapestries might be considered as reversible, notably the common form of warp or weft tapestries, and some double cloths.

It will generally be found, however, that according to the predominance of colour or figure the design will give some indication as to which is the face side. The superior power loom tapestries will be found to be those in which there is no hesitation in deciding upon the proper side to show the pattern. It will be like a picture, and tells its own story.

Many cloths put on the market as tapestries in which the design is produced both by coloured warp threads and coloured weft threads are reversible, but they are not the real "imitation tapestry." They are produced on the "double cloth" principle of weaving, and when the figure is very elaborate the cloths are often submitted as tapestry. In these cloths it is easy to trace the opposite coloured woven effect behind the cloth face, and thereby producing a reversible designed cloth. "Kidderminster," Scotch, and ingrain carpets and some kinds of tablecloths are produced in this manner. Most of them are reversible for use if necessary.

Many of the so-called tapestry coverings, cushionings and hangings, &c., produced in mixtures of cotton, silk, mohair, and worsted, in contradistinction to the imitation of "real old tapestry," might be suitably termed "brocade tapestry" or "damask tapestry," according to the nature of the fabric construction.

CHAPTER IX.

CARPETS.

Experts divide the manner of producing carpets into three distinct branches, viz. :—

- (1) True pile carpets ;
- (2) Tufted carpets ;
- (3) Ingrain carpets, double cloth or reversible carpets like the Scotch, Kidderminster, or Art carpets.

In the true pile carpet we find (*a*) Brussels, (*b*) patent tapestry, (*c*) Wilton carpets. The two first named are known as “uncut piles,” the last named is known as a cut or “velvet pile.”

The pile is formed by interlacing the pile warp threads over a long wire specially inserted in the direction of the weft between the warp threads during the operation of weaving. After a short length has been woven the wire is withdrawn, leaving a loop formation.

In the operation of withdrawing the wires, for a Wilton carpet a specially constructed knife blade at the extreme end of the wire cuts the pile warp and so forms the “cut pile.”

The manner of weaving both Brussels and Wilton tapestry carpets are similar, with the exception of cutting the pile warp. It will be found that every coloured pile warp thread forming the pattern is separately controlled in regard to its method of interlacing with the wire or weft threads, the position for interlacing and the selection of the variously coloured warp threads being controlled

by a Jacquard machine fixed on the loom. During the time the pile threads are not being used to form pattern, they are allowed to lie between the face of the fabric and back ground-work of carpet. A softer and spongy feel is thereby obtained. The quality of a Brussels or Wilton velvet pile carpet is determined by the number of colours or frames used, together with the number of loops per square inch. The best Brussels carpets contain about 100 loops per square inch, say 10×10 square.

Lower qualities will contain 9×9 per square inch, 8×8 , and even lower than these.

Some low qualities have only a light "backing" structure, and are not as "spongy" as the better qualities.

A five-framed Brussels carpet would mean that five separate warp colours will be individually controlled, and be used to form the pattern of carpet in doing so; they would continually exchange positions lengthways of the warp pattern and suggest to the eye that the five pile figuring warp threads were a multi-coloured continuous single thread, but they are all separately worked. The number of frames, therefore, will suggest the number of separately controlled alternative coloured figuring pile warp threads. The more frames used, the more expensive will be the carpet. The standard width is three-quarters of a yard.

A good method to assist in the identification of Wilton or Brussels carpets is to also examine the back where the continuous and individually dyed warp pile threads will be seen through the heavy backing structure.

The ordinary tapestry carpet, which originally was a patented method of carpet manufacturing, is a much

cheaper carpet than the Brussels or Wilton. The pattern is printed on the figuring pile warp threads. In order to get a clear outline appearance, great accuracy is required in printing the design on the warp threads. The outline of pattern, however, is invariably of a blurred or indistinct character, and may easily be distinguished from the clear and decided outline of design on a Brussels or Wilton carpet.

No Jacquard machine is required, the pile warp is generally worsted, and some part of the ground structure will be cotton. The stuffing warp which lies between the fabric structure is usually jute, and adds weight and bulk to the carpet.

The weft used is either jute, linen, or cotton, and is " sized " to stiffen the fabric.

A careful examination of the pile warp threads will show the difference between this carpet and Brussels. This is more apparent when the back is examined, the continuous self-coloured pile threads, very prominent in Brussels or Wilton, being absent in the tapestry, the figuring threads of which will be found of different colours in their length.

AXMINSTER CARPETS.

Axminster carpets belong to the tufted pile class. The design is produced by first weaving together or combining a variety of differently coloured short threads or tufts, so that when laid across in greater or less proportions of coloured tufts, a pattern will be produced. If a short or coarse tufted " pick " is examined, it will easily suggest to the observer how the pattern and

fabric are built up by the incidence of the coloured tufts in what might be termed the weft. These carpets compete largely with Brussels and Wiltons.

The outline of design, although produced with great skill, is not so clear or decided as on the Brussels or Wilton carpets. The "tufted" weft also of the Axminster will easily serve to distinguish it from the Wilton or velvet pile.

It is possible to obtain this class of carpet in wider widths than the previously mentioned carpets.

The materials forming the construction of an Axminster carpet are as follows :—

Tufting material	Worsted
Top or binding weft	Jute, linen, or cotton
Binding warp	Cotton or linen
Stuffing warp	Jute
Back weft	Jute

Moquette carpets are mechanically woven. The pile in this instance consists of knotted tufts, similar to Axminster, but constructed on a finer scale, and resembling Wilton carpet (velvet pile).

Persian, Turkey, and Indian carpets belong to the tufted class and are entirely hand made.

Some of the latest designs in Axminster carpets are imitations of Persian carpet designs, and they are very artistically produced.

There is no "pile" on ingrain carpets, but they are invariably reversible.

The latest style of "Art" carpet is produced by interlacing differently coloured weft threads with a self-coloured warp to form a *woven* design.

CHAPTER X.

GAUZE, CROSS OR LENO WEAVING.

This system of weaving differs from all others, inasmuch as all the warp threads do not run parallel or at right angles with the weft, but are more or less twisted round each other. The mechanical opera-

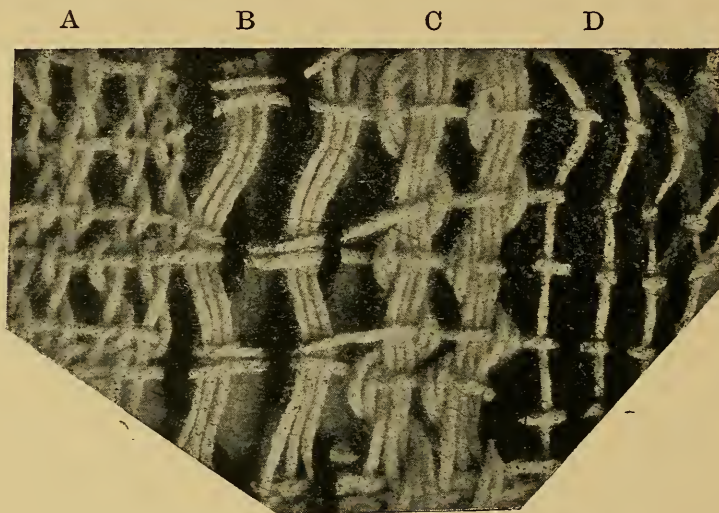


FIG. 28.

tion of weaving is more intricate than for the ordinary make of fabrics. The peculiarity in construction of this kind of fabric will not admit of a very close or heavy fabric being produced.

Stripes A and D, Fig. 28, illustrate by hand weaving a simple "gauze" or "leno" weave. Stripes B, C

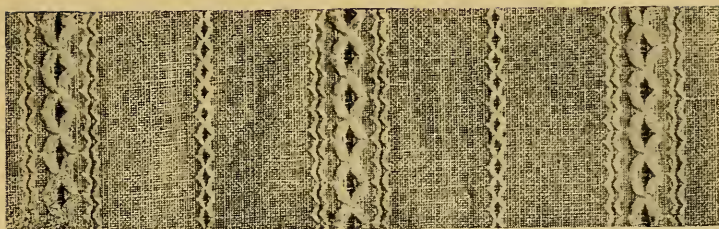


FIG. 29.

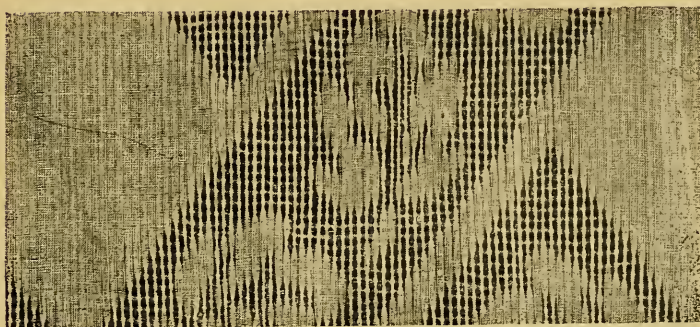


FIG. 30.

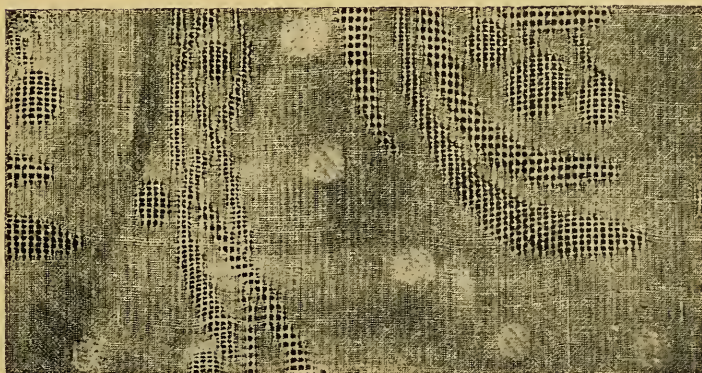


FIG. 31.

are other simple crossings. A "leno" is a combination of gauze with a few plain picks, but it is now used as a common term for all classes of goods in which the "gauze" or other crossed weave is used with other ground weave structures either as "all over effects" or in "stripes."

Fig. 29 illustrates a "leno" or "lace" stripe muslin.

Fig. 30 illustrates a figured leno.

Fig. 31 illustrates a figured leno with an "extra weft" spot figure.

The common "all over" leno buckram in the bleached or dyed state often used for millinery and dressmaking purposes is similar in construction to stripes A and D, Fig. 28.

The twisted threads make the "muslin texture" firmer than it would be otherwise if constructed in "plain weave."

CHAPTER XI.

COMPARATIVE CLOTH QUALITIES AND WATERPROOF CLOTHS.

In a cloth constructed with either strong, double twisted, taped, known as "double warp," or coarse warp threads, and with fine or weak weft threads, or in a cloth formed by the warp threads being closely set together and containing fewer weft threads or "picks" proportionally of the same material, it will be easier to tear through the "picks" or weft threads lengthways of the warp, rather than through the warp threads from one selvedge to the other. When the weft is stronger or thicker than the warp, or there is a greater proportion of "picks" than warp threads in the cloth, then invariably it will be easier to tear through the warp threads from one selvedge to the other, after first cutting one selvedge to get a start. The particular direction in which the strength is required depends upon the uses to which the cloth has to be put, especially for such uniform "weaves" as plains, twills, or sateens.

Many cloths are spoiled, due to having the warp too strong and the weft too weak, or contrary to this. Strong cloths made from double twisted yarns will be more difficult to tear, and often must be cut through for short piece lengths.

The comparative strength and quality of some cloths will often be judged by the "tearing test" in either the direction of the warp or weft.

In some classes of dyed cotton twills and sateens, made with single yarns for cheap linings and other purposes, this crude test is sometimes resorted to for comparison with previous goods supplied either for quality or to detect whether the goods have been tendered in the dyeing processes.

If the cloth tears sharp and clean across, through the warp from selvedge to selvedge, it would be considered to be right. But if during the operation of tearing across, the rupture or "tear" diverts "pick way" or through the weft threads instead of continuing its course through the warp threads to the opposite selvedge, it would be condemned.

This unscientific method of testing, however, cannot always be accepted as reliable, but it may serve sometimes as a guide. The angle and tension at which the cloth is torn, its dryness, or smoothness, and the presence of an uncommon physical fault in the locality of the "tear across," might cause a diversion in its course, thereby creating a false impression.

Cloths constructed with irregular "weaves," crossed weaves, mixed materials, different qualities or thicknesses of yarns, or with slackly woven figuring threads on uniformly woven ground structures, like Figs. 12, 13, 14, 17, and Figs. 19 to 23, and 28 to 31, cannot be fairly tested for comparison in the above manner. The crude test, however, might be utilised for a comparison of strength "pick" way of the cloth.

WATERPROOFS, &C.

Many cheap qualities of "waterproof," "rainproof," and "showerproof" garments are on the market. Such designations, however, do not guarantee their durability. Neither does an exhibition of a "decoy duck" floating on the water poured into a receptacle made from waterproof cloth, prove that it is impervious to the beating of a rain shower against it after being worn a short time. It is the condition of the back of cloth which is the most important. The ideal object in wearing a garment made from these kinds of cloths is, of course, lightness together with its imperviousness in a rain shower. Some of the cheap cloths are constructed too openly, and after the "proofing" in the material has become broken up, due to rough handling, and ordinary wear, they soon get saturated in a rain shower. The ordinary wearer generally does not understand why this should be, but he has only to consider the price that he gave for his garment to bring it home to him.

A good woollen overcoat would probably serve his purpose far better in many cases.

The better qualities of cotton waterproof, shower-proof, and rainproof cloths are made with good qualities of yarns, closely woven in warp and weft. The yarns are usually fine, well spun, and double twisted. The fine, hard spun, or twisted nature of the thread, assisted by the "proofing," will have a greater tendency to repel the water than the cheaper kinds. The higher

priced garments, therefore, will be invariably found to be the cheapest in the long run. The freer the cloth is from irregularities in construction or from thick slubby threads, the better will be its quality. There is always a tendency for thick threads to absorb moisture more than fine threads, and if many are present in a garment, they will be the first to become saturated. A good example in this direction is found with "linen duck" used for tent coverings. When exposed to inclement weather, experience has shown that the thick slubby places, so characteristic in some kinds of linen goods, become thoroughly saturated quicker than the more perfectly constructed parts of the cloth, thereby causing the water to drip through inside the tent. Similar remarks to the above may be applied on broad principles to garments made from worsted, linen, &c.

Rubber proofed goods are, needless to say, the least impervious to water, but one cannot expect them to be nearly so healthy and agreeable in odour as are the previously named class of goods.

INFERIOR WOOLLEN CLOTHS.

Further to previous remarks in this work, many low qualities of woollen goods have a heavy felted or nappy surface, but with a poor foundation. They do not stand much wear and tear, and soon become threadbare and shabby, due to friction and other causes. It is false economy to buy many of the cheap ready-made garments made from such materials, because they soon require renewal.

A genuine article—which will last longer and retain its good appearance—at a moderate price is rather to be desired for economical reasons than a low-class article which is considered to be cheap, but has to be bought oftener.

YARN TESTS.

To ascertain whether yarns in one cloth are finer or coarser than in another cloth, a ready way will be to draw a uniform number of threads from each cloth, loop one set with the other, and slightly twist, any difference will be quite apparent. For heavy sized yarns, however, it would be necessary to first clear out the “size” or filling in the threads by boiling, to form a definite opinion.

LOOM STATE AND “PURE” FINISHED GOODS.

Cloth sold direct from the loom without undergoing the “finishing” process, when torn across, should always have the weft threads lying in a straight line between the selvages. It also has a somewhat rough, hasky feel in comparison to a pure “finished” cloth. Some common kinds of “finished” cloths, with uniform weaves, when torn across from selvedge to selvedge, although they may tear continually along the same pick of weft, will be found to run in a slanting direction, or in the case of mixed “weaves” describe other irregular lines between the selvages. This is often due to the excessive pulling action in the process of “finishing” the goods, which might not have previously been very carefully prepared and woven.

Striped patterns with mixed weaves, especially in coloured goods, often get "pulled" crooked due to the different tensions of the warp threads in the cloths. Checked patterns sometimes become more pronounced in their irregularity unless the goods are carefully "finished." At times the wavy coloured lines between the selvages become objectionable, and spoil the pattern.

A good quality of cloth during "finishing" will have its selvages well under control, in order to keep the weft straight between the selvages, or to prevent pulling or distortion of pattern of cloth. A cloth, invariably, is better or smarter "finished" on one side than on the other. In twill cloths or sateens it may be an easy matter to decide which is the face side, but with plain or matting weaves it is less easy. The smarter and usually smoother finished side should then be selected as the face side. The high class "finished" cotton or worsted cloth has the natural fibre singed from its surface, and it is an easy matter to detect it from the common "finish." The high class "finished" cotton cloths usually have pinholes at intervals in each selvedge, to keep the weft straight and the width uniform, but sometimes it will be found that a cheap imitation of high finished cloths will also contain the pinholes, but not the high quality of finish. A comparison for the relative quantity of natural "nap" or fibre on the surface will show what the cloth is.

In some classes of dress materials, the distorted warp or weft threads, due to the pulling action during the

finishing process may entail difficulty in cutting out a garment to obtain the true "hang" or "pull of the cloth."

Cloths which are "stretched" in width, or kept out too much in width during the "finishing" processes, are liable to shrink when afterwards applied to ordinary uses.

CHAPTER XII.

FAULTS IN WOVEN CLOTHS.

In previous chapters sufficient information has been given from which an opinion may be formed with respect to a comparison for quality. The following are now given as representing the principal faults sometimes to be found in woven goods.

FAULTS IN THE CONSTRUCTION OF THE THREADS FORMING
THE WOVEN TEXTURE.

Irregular spun yarns in the warp and weft, such as loops, curls, or snarls, thick and thin threads where they should be uniform, slubs, lumps, specky, leafy, chippy, and dirty weft, mixed yarns and weak threads.

FAULTS IN THE WOVEN TEXTURE OR "WEAVING FAULTS."

Warp and weft floats, which destroy the regularity of twill pattern or other figured weave or ground texture, thus causing intersections to be missed or a loose interlacing of threads. Warp threads constantly pieced up, or knotted, due principally to bad yarns. Warp threads left out or missing, which spoil the regularity or evenness of cloth texture. Spoiled and broken weaves or patterns, called "broken picks," due to weft threads being left out, missing, or wrongly inserted. Thick places, caused by too many "picks" or a group of weft threads or

“picks” being irregularly inserted closer together in some parts of the woven cloth than will be the uniform “setting” of ground structure. Thin places, cracks, or frets, due to a few “picks” or a group of weft threads not being regularly inserted closely enough together in some parts of the woven cloth than will be the uniform setting of ground structure. These faults will appear horizontally from selvedge to selvedge of the cloth. Crowding together of a few warp threads in an odd place or two, which spoils regularity of texture, known as “cram dents.” These faults will appear lengthways of the cloth, and show in thin lines against the uniform ground texture.

. Slack threads in warp length. Threads arranged wrongly for figured goods, which produce irregular weaves. Coloured threads in wrong positions for coloured woven goods. Loose ends and lumps on cloth, scobs, thick weft, dirt marks, oil stains, mixed weft, bad selvedges, irregular widths. Unweaving places, *i.e.*, where the weaver has had to “unweave” or take out the weft threads previously inserted, for the purpose of rectifying some other faults caused through “bad weaving.”

These faults are similar to the thick places aforementioned, but often they will also show fluffy or linty where the unweaving has taken place, caused by the scraping action of the weaver’s comb. Coloured woven goods mostly show up these faults, and they often will be cut out, thereby making a disconnected piece length. Sometimes a “thin” unweaving place is caused instead of a “thick” one.

Warp thread “smash” places, *i.e.*, where a large number of warp threads grouped together have been accidentally broken or smashed during the operation of weaving, and an attempt has been made to piece them up without spoiling the appearance of the cloth. These faults often have to be cut out in the better qualities of cloth. Uneven weaving of warp threads or rough, common, and raw appearance of cloth, due to a faulty tensioning of the warp threads in weaving; reedy cloth, showing divisions between pairs or setts of warp threads lengthways of the piece.

Yarn and Cloth Treatment Faults.—Harsh or wiry “feel,” due to heavy sizing of yarns. Damp “feel,” due to heavy sizing with adulterating materials for counteracting “mildew,” principally in cotton goods.

Stiff and boardy “feel” due to heavy “filling” and “finishing” after the weaving process.

Patchy or blotchy places, and disagreeable smells owing to the action of mildew on damp cotton goods.

Dyed, Printed, and Bleached Goods.—Uneven shades in warp or weft threads. Specks, spots, streaks, glazing, cuts, oil splash, stains, iron mould, uneven dyeing in printing, faded colours, loose colours, tendering, brittleness, mildew, harsh feel, rough feel, thick feel, papery feel, not a “cloth” feel, not a “draping” feel, poor finish.

Make-up.—Wrong marking of piece lengths on tickets, irregular measurement of the yard, slovenly “make-up.”

GLOSSARY OF TERMS.

AEROPLANE CLOTHS.—(1) A closely-woven and strong cotton fabric made with folded yarns in both warp and weft.
(2) A strong, pure linen, medium texture, plain woven fabric.

AFRICAN STRIPE.—A bold coloured striped cotton cloth.

ALGERIAN STRIPE.—A mixed cream-coloured material made in imitation of Moorish cloth.

ALPACA.—A long, fine, lustrous wool fibre from the Peruvian goat. Alpaca material usually contains weft spun from alpaca with a cotton warp.

ALHAMBRA QUILT.—A counterpane woven with coarse waste weft, known as “candlewick.” A loosely woven coloured warp yarn is used for the “Jacquard” figure, and a grey “stitching” warp for securing the weft in its position. (All cotton.)

ANDALUSIAN WOOL.—A fine, soft woollen yarn used for knitting superior socks, &c. Usually a four-fold yarn.

ANGOLA YARN OR WOOL.—A mixture of wool and cotton. (About one-fifth cotton.)

APRON CHECKS.—Coloured woven fabrics, with a warp stripe border and cross-over “checking,” or colouring. Sometimes “all over” checks.

ARTIFICIAL SILK.—A cheap, chemically-produced substitute for pure silk.

ASTRAKAN.—A pile fabric with a curly surface.

BAIZE.—A coarse woollen stuff, with a “nap” like flannel.

BANNOCKBURN TWEED.—A pure woollen Scotch tweed.

BARNSELY LINENS.—A description of linen especially made for the purposes of embroidery. Bleached and unbleached.

BARRACAN.—A coarse, thick moleskin or fustian, similar to camlet, used for outside clothing.

BEATRICE TWILL.—A five-end four weft and one warp twill.

BEAVER.—A heavy woollen cloth milled and raised and nicely finished.

BEAVER CLOTH.—A stout woollen make of cloth, milled, having a smooth surface.

BEAVERTEEN.—A variety of fustian. Woven in the grey state and afterwards dyed and cropped.

BEDFORD CORDS.—Corded or ribbed wool or cotton fabrics lengthways of the piece, but free from floating or loose threads on the surface as distinct from "corduroys," used for riding breeches, &c.

BEIGE.—Material made from undyed wool.

BEIGE TWILL.—A bold diagonal twill.

BERLIN WOOL.—Knitting and embroidery wool. Sometimes called German wool, but largely spun in England.

BLACKBURN AND BURNLEY CLOTHS.—Grey cotton cloths made in the districts named, which are often bleached, dyed, or printed in the piece length after delivery to the merchant. They are considered to be inferior to Glossop printers and other Cheshire makes for the same purpose.

BLANKET.—Originally a "flannel" fabric all wool. Many blankets are now made of mixed materials of cotton and wool. Low qualities are simply "cotton blankets." Bury and Dewsbury are noted for real "blankets."

BLEACHED CLOTHS (COTTON).—Grey cotton piece-goods, afterwards bleached in the piece length.

BOLTING.—A fine kind of canvas, sometimes made in linen and silk.

BOLTON SHEETING.—A thick, coarse twilled cotton cloth.

BOMBAZINE.—A combination of silk warp and worsted weft material.

BONNET COTTON.—A coarse thread, consisting of eight to 16 strands twisted together.

BOOK MUSLIN OR BUKE MUSLIN.—A plain description of muslin stiffened.

BOTANY WOOL.—Merino wools, or other good fine qualities of Australian wool.

BOX CLOTH.—Thick coarse Melton cloths dyed in colours.

BRAIDS.—Narrow tape materials made from alpaca, mohair, worsted, cotton, silk, artificial silk, mercerised cotton, and linen of various sizes and descriptions.

BRILLIANTINE.—A plain woven fabric, with fine cotton warp and a heavier wool or worsted weft.

BRILLIANTE.—A lightly woven cotton fabric having small weft figures.

BROADCLOTHS.—A stout and good quality of woollen cloth, exceeding 29 inches wide, with an even-felted surface.

BROCADE.—A weft figured Jacquard cloth. A figured fabric, the figure of which is chiefly constructed by weft threads floating on the surface of a single cloth texture in any desired manner to form a pattern. A sateen brocade is a weft “Jacquard” figure produced on a warp sateen ground texture.

BROCATELLE.—A silk material used for drapery carriage linings, &c.

BROCATINE.—Textile materials having a raised design thrown up in the weaving.

BROCHÉ.—A velvet or silk material with a satin figure thrown upon the surface.

BROWN HOLLAND.—A linen material, half or unbleached, used for dresses. Glazed and dyed hollands. Often used for trunk linings and furniture coverings.

BRUSSELS CARPET.—See Chapter IX.

BURBERRY CLOTH.—A “waterproof” fabric in which the yarns have been specially “proofed” before weaving.

BUCKSKIN CLOTH.—A fine warp sateen fabric.

CABLED YARNS.—A folded thread, of which the strands composing it are also folded like a six-cord sewing cotton thread, for example, which has three doubled threads “folded” or twisted together.

CADDOW QUILT.—A heavy grey fabric produced on the hand loom, in which the thick weft inserted is “plucked” or “looped” up by hand to form the design. Very scarce.

CALICO.—A common term applied to plain grey woven goods, sometimes applied to twill cloth as “twill calico.”

CAMBRIC (COTTON OR LINEN).—A plain woven cloth, constructed of fine yarns closely woven, usually bleached, and finished in the piece. Cambric handkerchiefs for example.

CAMLET.—Material originally made from camel’s hair, but now made from the hair of the Angora goat. Imitations are made from closely-twisted worsted yarn or worsted and silk. It is thick and warm.

CANTOON.—A class of fustian, with a fine cord on one side and a satin warp surface upon the other. Smoothed by singeing. Used for workmen’s dresses.

CANVAS.—Cloth of an open texture, but strong, and often made of coarse folded yarns. Many examples are seen in embroidery canvas. (Cotton.)

CANVAS (SAIL).—A stout strong built cloth, with “double warp” coarse flax yarns.

CARPETS.—See Chapter IX.

CASEMENT CLOTH.—A plain woven fabric made from worsted, mohair, alpaca, or all cotton, usually dyed self-colours or bleached.

CASHMERE.—A lightly woven fine twill fabric. Cotton or woollen warp and fine botany wool weft.

CASHMERE TWILL.—A two-weft and one-warp twill.

CHARDONNET SILK.—An artificial silk.

CHECKS.—A fabric in which the coloured threads are set the same both warp way and weft way to form a square pattern. “Bastard checks” have coloured weft crossings to form squares or rectangles, but of different colours to those threads in the warp.

CHEVIOT CLOTH.—A rough kind of twill woven cloth, similar to “homespun” or the coarser Scotch tweeds. Made from pure Cheviot dyed wools.

CHENILLE.—A combination of differently coloured groups of short threads in “caterpillar” fashion, interlaced in longitudinal strips to form “weft” for carpets similar to Axminster, thereby producing the design on the carpet. A modified means for imitating “pile” fabrics.

CHEESE-CLOTH.—A very open and lightly-constructed plain cloth, often used for drawn thread work.

CHESHIRE CLOTHS.—Grey cotton goods made in Cheshire or on the borders of Lancashire and Cheshire. Noted for their superior quality, and always full up to specification. (See Blackburn and Burnley cloths.)

CHIFFON.—A lightly-constructed, plain woven silk material.

CHINTZ.—A multi-coloured printed fabric, plain or fancy ground texture, used for hangings and curtains. Woven chintz fabrics have various colours printed on the warp threads before being woven into cloth. Examples seen in silk trimmings. Also known as chené, where the colours seem to have run in the pattern.

COBURGS.—Stuff materials composed of wool and cotton. Some have a silk warp and woollen weft.

COLOURED WOVEN GOODS.—Coloured cottons, woollens, or linen goods, in which the yarns are dyed before the weaving process. The pattern of cloth is formed by the interlacing of individual coloured threads, as distinct from printed patterns, which are “set” or “fixed” on the cloth surface.

- CONNAUGHT YARNS.**—An Irish fingering wool yarn produced by the peasants of Valencia Island.
- CORDUROY.**—A “ribbed” cotton fabric lengthways of the piece, formed with “pile” weft, which is afterwards cut. (See pile fabrics.) A “fustian” cloth.
- CORD.**—Woollen. Similar to above, with a “wool” cut pile weft and a cotton warp.
- CORKSCREW.**—A twill weave in which the diagonal rib formed on the surface is much less or greater than at an angle of forty-five degrees.
- COTTON.**—See Chapter III.
- COUNTS.**—Numbers given to different thicknesses of yarns, or closeness of reeds, healds, &c.
- COUTIL.**—A firmly coloured woven fine twill cotton fabric, often used for corsets.
- CRAPE.**—A plain woven fabric with “hard twisted” yarns. A contraction in the finishing process produces the crinkled appearance. Crape weave; a fabric with threads interweaving irregularly to imitate a crape.
- CRAPE YARN.**—A very hard-twisted thread which shrinks or curls in length when not kept at a high tension.
- CRASH.**—A coarse material mostly made from linen yarns and used for towelling.
- CREPON.**—Similar to crape. Sometimes produced by the admixture of different materials, which, in the after-processes of finishing, are acted upon differently by chemicals.
- CRETONNE.**—A fairly heavy cotton fabric made with common coarse wefts, with printed figures on irregularly woven grounds like crape, or plain or twill ground. Used for hangings, &c.
- CRIMP.**—A plain woven fabric which contains “cockled” striped effects, by having slack and tight warp threads running from different warp beams.
- CROYDONS.**—A kind of cotton sheeting.
- GRUMB CLOTH.**—A heavy linen Damask fabric, sometimes used as a stairs covering.

DAMASK.—A fabric in which the ground and figure are of “reverse” weaves, as, for example, a linen damask table cover, *i.e.*, a warp face figure with a weft face ground. Both figure and ground are equally bound, and form a uniformly firm fabric. In cotton goods a “warp” figure on a weft-covered ground, but of a different weave, is sometimes described as a “cotton damask.”

DELAINE.—An all-wool plain-woven material, lightly constructed often printed in tasteful colourings.

DENIM (BRITISH MAKE).—A brown or blue self-coloured twill fabric, coarse warp yarns, heavily sized and grey coarse weft. Sometimes made with a warp satin weave. Used for workmen’s overalls and slops. Sold as “loom state” cloths. American denims are not heavily sized.

DIAGONALS.—Bold twill woven textures.

DIAGONAL CLOTH.—A soft wool material with a bold twill. Also made in cotton.

DIAPER WEAVE.—In cotton fabrics, it is confined to diced or diamond reversible patterns on a small scale. The weave is produced by the interchanging of warp and weft. In linen fabrics, as above, in diced, diamond, and bird’s-eye patterns, and also small figured damask patterns, reversible. Other names, “Dorneck,” “Diced.”

DIAPER CLOTH.—Linen fabrics with the diaper weave.

DIMITY.—A bleached figured striped brocaded cotton cloth, stout in texture. The figures are arranged in alternate stripes, and appear as if embossed, due to the coarse weft “flushes.” Used for bed hangings, &c. Sometimes the unfigured woven stripe is afterwards printed upon for further ornamentation. Sometimes bird’s-eye patterns are termed dimity in cotton goods. A cheaper kind is sometimes made by arranging a reversed woven stripe of warp face and weft face twill on a plain ground texture.

DOESKIN CLOTH.—A woollen cloth with a smooth surface.

DONEGAL TWEEDS.—See tweeds.

DONGAREE.—A blue “self”-coloured “three-thread” warp twill, heavily sized warp and weft yarns. Blue weft. Sold as loom state cloths. Used for workmen’s overalls and slops.

DOMETT.—An open plain cloth, cotton warp and woollen weft.

DOWLAS.—A strong, coarse, unbleached linen cloth. Used for aprons, towels, collars, &c.

DRILLS.—Strong warp-faced fabrics, woven in the twill and satin weaves. Often bleached or dyed in the piece length.

DUCK.—A plain woven, but heavy and strong, fabric. Often made of folded yarns for cotton, and coarser single yarns for linen duck.

DYED CLOTHS.—Grey woven cotton, linen or woollen goods, dyed various solid shades and colours in the piece length after leaving the loom.

EGYPTIAN CLOTH.—A basket woven cotton cloth, used for embroidery work.

EMBOSSSED PLUSH OR VELVET.—A solid dyed material, on the velvet surface of which the pattern or outline of design is impressed or stamped.

FABRIC (TEXTILE).—A woven or knitted material.

FAST COLOURS.—A term sometimes *loosely* used. Some colours may be fast to washing, but not to light. Others may be fast to light and poor for washing or rubbing. The best fast colours are those which will withstand both washing, light, laundry treatment, and bleaching. Fast colours with ordinary treatment should not “bleed” or “run” into other colours. There is no difficulty in obtaining genuine fast colours. The comparative fastness of colours to washing may easily be ascertained by putting a strip of the colour, along with a “grey” strip and washing in either hot or cold water. Any looseness of colour will show itself on the grey strip.

FAST PILE VELVETEEN.—A velveteen in which the pile on the surface of the fabric is firmly secured in the ground structure.

FIBRE.—See Chapters II. and III.

FILOSELLE.—A spun silken thread used for embroidery, as distinguished from the raw or net silk.

FINGERINGS.—Worsted used for stockings, made up in small lots for domestic uses.

FINISHED CLOTHS.—The last process through which cotton, silk, linen, woollen, or worsted goods pass before being made up for distribution. The style of “finish” given to the goods will depend upon their uses. Some goods are “pure” finished, others “ordinary” finished and slightly assisted in the feel by “filling,” whilst common qualities are heavily filled, and weighted. Beetled and Scotch finishes for high-class cotton goods are pure finish, and the fibres or nap on the surface are “fired” or “singed” off to give a soft, smooth and lustrous appearance. A cheaper finish, known as imitation Scotch, is also largely used for lower qualities of cotton goods. Many people are under the impression that the real Scotch finish can only be done in Scotland, owing to the purity of its waters. It, however, may be said that the same finish exactly can be satisfactorily given by many Lancashire finishers.

FLANNEL.—A plain or twill woven material, usually all wool, of loosely spun yarn. Imitations of flannel in low qualities are mixed with a large amount of cotton and wrongly described as flannel which are inflammable.

FLANNELETTE.—A plain or twill all-cotton fabric woven with coloured yarns to form stripes or checks, or woven in the grey state and afterwards dyed as “self” colours. The weft on both sides of the cloth is afterwards “raised” to form a “nap” or “woolly” feel. The best flannelettes are closely woven in the warp, and have a short “nap.” Flannelettes are sometimes printed and known as printed flannelettes. By special treatment, “flannelette” can be made “fireproof” and superior to some classes of cheap “flannels.”

FLAX.—See Linen, Chapter III.

FORFARS.—A coarse, heavy unbleached linen cloth.

FOULARD.—A washing, light texture silk material with printed designs.

FOULIE.—All wool cloth, severely milled and finished.

FRENCH CAMBRICS.—A superior make of linen cambric, very silky in appearance.

FRENCH MERINO.—A fine twilled material made from the merino wools, the same appearance on both sides.

FRENCH TWILL.—An English-made dress material, similar to the French merino.

FUSTIAN.—A general term applied to heavy grey cotton “weft pile” fabrics like corduroys, velveteens, moleskins, &c.

GABARDINE.—A term applied to “rain-proofed” cloths, not “rubber proofed.”

GALATEA.—A “three-thread” twill weave, with warp coloured grounds of dark blue and sky blue principally, and narrow stripes of white, red, sky, or other smart suitable colourings. The best qualities are usually sold “loom state.” The weft is usually coloured to match the ground. Used for boys’ suitings and blouses.

GALLOON.—Bands and bindings for men’s hats, dress trimmings, and curtains. Made of silk, woollen, artificial silk, cotton, and linen yarns.

GALWAY CLOTH.—A closely woven cloth, coarse texture, suitable for cloaks, usually dyed scarlet and worn by the Irish peasantry.

GAMBROON.—A twilled linen lining cloth.

GAUZE BROCHE.—Similar to Grenadine, but decorated with floral designs of satin construction.

GAUZE OR LENO.—See chapter on gauze or cross-weaving.

GIMP.—An open work trimming used for dresses and furniture made from silk worsted or cotton yarns.

GINGHAM.—A firmly coloured woven plain fabric checked in colours. Usually a fine or medium thickness of warp yarn, but a heavier coloured weft. A common coloured check cloth for domestic uses in country districts.

GLACÉ.—A mixed material with cotton warp and thicker mohair weft.

GLACE SILK.—A lustrous and cheap quality of plain woven silk produced in self-colours, stripes, shot effects, or chené effects.

GLANZSTOFF.—An artificial silk.

GLORIA.—A finely-woven twill silk and woollen fabric used for umbrellas.

GOSSAMER.—A rich silk gauze.

GRANDRELLE.—A twofold yarn composed of two differently coloured single threads twisted together.

GRANDRELLE SHIRTING.—A heavy cotton warp sateen cloth made with grandrelle warp yarns and grey cotton weft.

GRENADINE.—An openly woven fabric, plain or gauze texture, for dress material. Sometimes made of dyed cotton yarns, silk, polished yarns, or other materials.

GROSGRAIN.—A stout black silk “stuff” having a fine cord, like repp.

GREY CLOTH.—Fabrics made from yarns in the grey state. Not bleached or dyed, as distinct from woven coloured fabrics.

HARVARD.—A two-and-two twill. Same weave as a sheeting or Cassimere twill. (See Fig. 5, “Harvard shirting.”)

HAIR CORD MUSLIN.—A fine cotton cloth with fine cords running lengthways.

HAIR CLOTHS.—Woven materials made from the hair of animals.

HARRIS TWEED.—A “homespun.” Usually natural coloured, heavy and rough pure woollen material, with a twill or diagonal weave. It usually has a strong smell.

HERRING-BONE.—A firmly woven striped cloth arranged in various widths of pattern, produced by reversed twill weaves, after the manner of herring bones or feathers.

HESSIAN.—A strong, coarse, plain woven packing or wrapping cloth, mostly made from jute yarns. A standard make for a price basis is 40 inches wide, 13 shots per inch, weighing $10\frac{1}{2}$ ozs. per yard.

HONEYCOMB.—A “weave” to represent a “honeycomb,” *i.e.*, “honeycomb towel,” “honeycomb quilt.”

HOPSACK.—A matting “weave” fabric.

HOLLAND.—Unbleached linen. Glazed and unglazed. Used for carriage covers, trunk linings, dress materials, boys’ suitings, window blinds.

HOMESPUNS.—A coarse and loosely woven heavy “loom state,” pure woollen cloth for men’s and women’s wear. The fibres of the threads will be found to be naturally curly, long, and wiry. Formerly hand-spun and woven on the hand loom solely, but now imitated by manufacturers.

HUCK-A-BACK.—A “weave” of a floaty nature, but firmly bound, giving a coarse and rough appearance to the fabric; “huck-a-back towel.”

IMITATION WOOLLENS.—A system of treating cotton fabrics made of short-stapled cotton weft loosely spun. A “nap” is raised, and the fabric is afterwards suitably “finished” and pressed similar to woollen goods. In view of the restrictions being put upon the sale of “flannelette,” more will probably be heard of this imitation material in the future. Considering the abuse of the term “flannel,” this imitation material may be designated “Cotton flannel,” until the law defines that “flannel” shall be all wool.

INGRAIN CARPET.—A carpet made from wool yarns which have been dyed previously to the weaving process.

IRISH CAMBRIC.—A linen cloth as fine as the French cambric.

IRISH DUCK.—A stout linen material used for workmen's blouses.

IRISH LINEN.—All linen, usually fine texture material.

ITALIAN LINING.—Usually a weft sateen, cotton yarns, dyed or bleached, and afterwards highly finished to give a "glossy" appearance. Better qualities will be made of mixed materials or of linen.

JACCONETTES.—Plain woven cotton goods lightly constructed, composed of light yarns. Bleached, dyed, or printed in the grey piece length. (See mulls, nainsooks, cambrics, &c.)

JAEGER.—An "all wool" material.

JEAN.—A "dongaree" cloth woven on "three threads" is sometimes called a jean. Better examples of coloured woven warp jeans may be seen in the navy blue jeans of good quality used for sailors' collars, boys' and girls' clothing, and in the drab jeans used for corsets. Sometimes they are woven in the grey state as weft twills, which are afterwards dyed for lining cloths.

KERSEYMERE.—A twilled fine woollen cloth, 2 by 1 weft twill.

KIDDERMINSTER CLOTH.—A reversible figured woven "double plain cloth" fabric. (See Chapters VIII. and IX.)

KNICKERBOCKER.—A kind of linsey cloth, with a rough surface caused by the irregular thickness of the weft.

LAMBS' WOOL YARN.—A soft twisted woollen yarn dyed various colours, used for fancy work.

LAPPET.—See chapter on lappet weaving.

LAWN.—Originally a fine linen bleached fabric, superior to cambrics. Victoria lawns are made from fine cotton yarns, plain woven.

LENO.—See gauze or cross-weaving.

LINE.—The fine, long, or hackled flax fibres for spinning into a good quality of linen thread.

LINEN.—See Chapter III.

LINGERIE.—A term to denote collars, cuffs of linen, muslin, &c.

LINSEY.—A coarse mixed material of linen warp and worsted weft.

LINSEY-WOOLSEY is a material combination of linen and woollen.

LIST.—The selvedge or edging of a woven material.

LONGCLOTH.—A fine bleached cotton cloth with its surface smoothed by undergoing a “gassing” process. Used for shirtings, underlinen, &c. (Plain or twill texture.)

LOONGHIE —A garment of coloured silk or cotton, about four yards long by 24 to 36 in. wide.

LOOM STATE.—Cloth delivered direct from the loom not “finished.”

LUSTRE.—A mixed material of fine cotton warp and mohair, or merino wool weft

MADAPOLAMS.—A coarse calico cloth.

MATELASSE.—A heavy figured cloth with a compound weave, used for mantlings or vestings.

MELANGE YARNS.—A multi-coloured thread, produced from mixed dyed fibres, or else printed upon.

MELTON CLOTH.—A stout make of cloth for men’s wear, neither pressed nor “finished.”

MERINO.—For dress material; all wool. Hosiery, wool and cotton mixed.

MOHAIR.—The hair or wool from the Angora goat.

MOLESKIN.—A fustian cloth, in which the weft is not cut, but the back of fabric is “raised” or made “nappy.”

MOMIE CLOTH.—Material composed of cotton warp and woollen weft, or silk warp and woollen weft, resembling crape.

MOQUETTE.—A pile carpet composed of knotted tufts.

MOREEN.—A coarse, stout, Union material, slightly stiffened. Sometimes “watered” or plain, used for petticoats and upholstery.

MULL.—A plain woven cotton fabric, light texture, finely spun yarns.

MUNGO.—A wool waste product, used for cheapening yarns and woollen cloth—shoddy.

MUSLIN.—A plain woven fabric, light and open in texture. Muslins are often figured with lappet or embroidery threads.

MUSLIN-DE-LAIN.—A light muslin material, sometimes all-wool and sometimes mixed with cotton.

NAINSOOK.—A light cotton cloth similar to a lawn, but narrower as a rule.

NANKEEN.—The drab jean cotton cloths used for corsets are often called nankeen twills.

NOILS.—Wool, short fibres obtained during the process of “combing” for worsteds. (Also, see Silk Noil, Chapters II. and III.)

NUNS' CLOTH.—Bunting cloth, plain woven woollen material. Made in various qualities.

OATMEAL CLOTHS.—Rough surface woven materials, with similar effects to crape. A term applied to cotton, linen and woollen goods.

OMBRE.—Graduated tints to give shaded colour effects.

ORLEANS CLOTH.—A plain texture for dress material, with fine cotton warp and worsted weft, dyed various colours.

OXFORD SHIRTING.—See “Shirting,” also Fig. 12.

PLAIN CLOTH.—The simplest and firmest method of cloth texture. (See “weaving” chapter.)

PAPOON.—A coloured woven cotton fabric, principally exported to the East. Plain weave, with different solid colours of warp and weft to obtain shot effects, and highly finished.

PARAMATTA.—A kind of bombazine cloth. Cotton warp, worsted weft. Used as dress mourning material and waterproofing.

PERCHING.—Raising a “nap” behind fabrics, such as “mole-skins,” “swansdown,” or “perched” quilting. For woollen goods it means “inspection” for faults.

PILOT CLOTH.—Indigo blue strong twilled woollen cloth, principally used by mariners for overcoats, &c. It has a nap on one side.

PIQUE.—Usually a white cotton fabric, having small ribs or “welts” from one selvedge to the other, produced from fine yarns closely set in the reed and pick, and weaving slacker than the tight backing warp, to give a raised “form” over the thicker stuffing weft threads inserted. Used for ladies’ summer dress wear, ties, &c.

PILE.—See chapter on “pile fabrics.”

PIRLE FINISH.—An “unshrinkable” showerproof finish.

PLUSH.—A long “pile” produced by warp or weft. There is “silk plush,” “mohair plush,” “cotton plush,” &c.

POPLIN.—A plain fabric with fine threads closely set in the warp and a coarse weft. “Irish” poplin is made from a silk warp and worsted weft. A common term used in cotton fabrics for a ribbed fabric produced on a plain texture, with coarse weft, as above. “Real” poplin is not essentially “Irish” poplin.

PRINTERS.—A lightly-constructed plain cotton cloth woven in the grey state for printing purposes.

PRINTED CLOTH.—Cotton or other goods woven in the grey state and afterwards printed various designs according to fashion. The pattern is not like coloured woven goods, because the same coloured thread is not continuous.

QUILTS.—There are different kinds :—(1) Alhambra (see alhambra quilt), (2) patent satin, (3) honeycomb, (4) Grecian, (5) toilet, (6) tapestry (see Chapter VIII.), (7) Marseilles.

(2) The figuring weft is well bound and raised on a fine woven ground structure. Piece bleached and also woven with coloured yarns. (3 and 4) The best qualities are made with “folded” or crochet yarns bleached before weaving. The lower qualities are made with coarse waste bleached weft and heavily “finished” or “filled.” (5) The woven Jacquard figure is of an embossed or “blistered” character, produced by having two warps of unequal tensions, like “pique” weaving. The cloth is bleached after weaving. (7) A double cloth fabric similar to the toilet quilt, but made heavier with “backing” and “stuffing” yarns.

RAINFOOF CLOTH.—A fabric in which the yarns or cloths have been specially treated to become impervious to water.

RAW SILK.—Silk reeled direct from the cocoon of the silk worm. “Pure silk” or “net silk.”

REGATTA.—A “three-thread warp twill,” usually in blue and white stripes, and white or grey weft of a heavier texture than the “Galatea.” Used for boys’ suitings. The warp yarns are usually “folded” to make a strong fabric. It is also the regulation weave in a blue and white stripe for the “British Navy shirting.”

REPP.—A fabric similar to the “poplin,” but of a coarser appearance. A double warp thread and single warp thread will sometimes be placed alternately side by side. It is also used as a common term for “poplin” weaves in the cotton trade.

REEDY CLOTH.—A “bare” looking cloth in which the warp threads do not appear to be uniformly distributed. Reed marks, or lines lengthways of the piece are thus caused owing to the groups of threads in one dent keeping distinct from the next group.

RUBBER PROOF.—A “water-proofed” fabric, in which the imperviousness is effected by a thin layer of rubber either over the back of the cloth or between two fabrics.

RUSSEL CORD.—A corded repp material used for scholastic gowns, summer coats, &c., usually a mixture of cotton and wool material.

SACKCLOTH.—Coarse sheeting for bale wrapping and bag making.

SATEENS.—See chapter on “weaving.”

SATIN.—A similar meaning to sateens, applied to silk goods.

SATIN FACE.—Usually a silk warp face fabric with cotton, woollen, or other weft. (See chapters on silk goods and compound fabrics.)

SAXONY.—A distinguishing term for merino wool to distinguish from Cheviot wools.

SCRIM.—A coarse jute or linen canvas material for sieves, curtains, &c.

SERGE TWILL.—A bold diagonal twill. A coarse twill worsted cloth.

SHANTUNG SILK.—Undyed Chinese silk.

SHALLOONS.—A loosely woven twilled worsted stuff used for coat linings and dresses.

SHEETINGS.—A stout, plain, double warp, or twill woven cotton fabric, largely used for bed clothings. Sometimes sold in the grey as “grey sheetings,” and sometimes in the bleached state as bleached sheetings. “Bolton” sheetings are usually made of good yarns. They are also made in linen yarns.

SHIRTINGS, COLOURED.—Oxford, Harvard, zephyr, sateen, and grandrelle shirtings represent different makes of coloured woven cotton fabrics, with different styles of designs. Oxford shirting is a “taped” warp and plain ground weave, with coarse white weft. Figures are also introduced. Harvard shirting, a two and two twill ground, with well-bound small figure effects and mostly white or grey wefts. There are also “woollen,” “flannel,” “union,” and other “mixed material” shirtings.

SHIRTINGS—BLEACHED AND GREY.—Bleached shirtings are made from fine and medium yarns in both cotton and linen. Grey cotton shirtings are usually for exportation, and are heavily “sized.”

SHODDY.—See Chapter II.

SHOT MATERIALS.—A woven material, in which the warp threads are of a different colour to the weft threads. The “shot” effect is more pronounced in the “satin” or “sateen” weaves.

SHOWERPROOF.—A fabric not necessarily “waterproof” or “rainproof,” but “prepared” to become impervious to a rain shower.

SILESIA.—A grey twill or sateen woven fabric, usually printed in stripes, and highly finished.

SILVALIN.—A paper yarn mechanically produced.

SKYTEEN.—A warp sateen coloured striped common cotton shirting, sky blue grounds, grey weft.

SPONGE WEAVE.—A loose method of interlacing coarse soft spun yarns, suitable for dress materials. Waste “sponge” cloths are “gauze” or “cross” woven, very open in texture, and used for cleaning purposes.

SPUN SILK.—Silk threads mechanically spun from the “waste” of raw or net silk. (See Chapter on silks, &c.)

STOCKINETTE CLOTH.—An elastic cotton fabric.

STUFFS.—Bradford products of mixed cotton and wool materials such as “lustres.”

SWANSDOWN.—A heavy and closely-woven cotton fabric with a raised nap on its back.

SWIVELS.—See Chapter V.

TAFFETA.—A plain woven material, silk warp and woollen weft. Also a loosely used term for other materials.

TAMMIES.—Twilled material made from worsted warp and cotton weft, similar to “bunting.”

TAPESTRIES.—See Chapter VIII.

TERRY.—Uncut warp pile threads or loops, similar to those on the surface of Turkish towels or Brussels carpets.

TEXTILES.—A general term applied to any material produced in a loom.

THICKSET.—A fustian cloth.

TICKS.—A close warp face fabric, used for bedticking, with highly coloured and bold striped patterns. Often made of cotton yarns “wiry” sized, and sometimes with a linen warp or weft.

TINSEL.—A thin, loosely woven material of gold or silver threads.

TISSUES.—A general term applied to woven materials.

TOILET COVERS.—Specially designed cotton fabrics constructed similarly to toilet, pique, patent satin, or honeycomb quilt weaving. (See Quilts.)

TOW.—Short and coarse fibres of flax, for spinning into weft or coarser linen yarns, seldom “hackled.”

TULLE.—A fine silk woven material, plain and figured, used for veils, dressing trimmings, bonnets, &c.

TULLE (“CAST”).—An imitation tulle “cast” from artificial silk, not woven.

TUSSORE OR TUSSAH SILK.—Indian wild silks. Usually woven plain, and sometimes printed. Brownish colour.

TWEEDS.—The best power loom Scotch tweeds are made from pure all-wool yarns of good staple. The coloured yarns are obtained by dyeing the **wool** before spinning it into a thread, so that solid and mixed coloured yarns or

melange yarns can be produced for accomplishing a skilful blending in the construction of the material. The fabric is only lightly felted or milled, due to the yarns having been previously dyed. The designs are usually of a subdued character, and the texture is on a coarse twill weave basis, with coarse yarns. There is a richness and pure "woolly feel" about the cloth, which are lacking in many of the cheaper Yorkshire-made tweeds and other low-class imitations, often produced from shoddy, mungo, or wool extract. These latter named also might be mixed with cotton to assist in holding the fabric together. Donegal tweeds are "pure wool" Irish "homespun" fabrics. The cloth is coarser in appearance, more open in texture though firmly woven, and inferior in quality to the best Scotch tweeds. The texture is usually plain woven, with a grey or self-coloured warp and mixed "wool dyed" yarns for weft, to give a speckled pattern effect. Very popular for walking or golfing suits and costumes. See also Bannockburn and Harris tweed.

TWILL CLOTH.—A fabric, in which the method of interlacing warp with weft describes a uniform diagonal line on its surface.

TYRE CLOTHS.—A fabric made from strong slackly folded yarns of good cotton, for lining a tyre. The warp threads are very closely set together to bear a great strain. The weft threads are very openly set to prevent undue pressure or cutting by friction on the warp threads—which should lie straight—due to the action of inflated tube and the tyre when in use.

UNION.—Usually a mixture of woollen and cotton material, or linen and cotton.

UNDRESSED MATERIAL.—Pure finished cloths without "dressing" or "filling."

VELVETEEN.—A cotton fabric produced to imitate velvet. The pile surface is formed by "weft floats," being afterwards cut. (See chapter on pile fabrics.)

VELVET.—A fabric with a silk warp pile but a cotton back usually. Silk velvet would be "all silk."

VELOURS—WOOL.—A soft and thick “nappy” flannel, used for dressing gowns, &c., made in various colours. Also made in cotton.

VICUNA.—Wool of a soft nature, obtained from a wild animal in Peru.

VISCOSE.—Artificial silk yarn.

VIGOGNE.—A lightly-constructed twill all-wool material. Used for summer dress wear.

VIYELLA.—A material composed of a mixture in the weft of cotton and wool.

VOILE.—A very open lustrous and light fabric, usually made from fine folded gassed cotton yarns, or silk, or worsted yarns. Plain weave.

WARP SATEEN.—See “sateen weaves.”

WARP PILE.—See “pile fabrics.”

WARP.—See Chapter IV.

WARP FACED CLOTH.—A fabric which contains a greater proportion of warp threads than weft threads or “picks” on the face side of cloth.

WASTE CLOTHS. Fabrics made from coarse weft spun from waste or short fibre cotton.

WEBBING.—A “narrow width” fabric, strong and coarse, made with flax or hemp yarns. Used on such articles as nosebags, rugs, chairs, and sofas, in the form of belts, straps, or slings.

A heavy, stout webbing is sometimes made of evenly twisted, strong coarse folded *cotton* yarns, for straps or slings. A lighter texture made of mixed materials or of all flax, hemp, or jute, is also sometimes used for binding purposes on workmen’s tool bags and such like.

WEBBING—ELASTIC.—A woven braid of silk, mohair, cotton, worsted, &c., between the threads of which are interlaced strands of india-rubber.

WEFT SATEEN.—See “sateen weaves.”

WEFT PILE.—See “pile fabrics.”

WEFT.—See Chapter IV.

WEFT FACED CLOTH.—A fabric which contains a greater proportion of weft threads or “picks” than warp threads on the face side of cloth.

WHIP CORD.—A material constructed with a bold diagonal weave at a greater angle than forty-five degrees. The closeness of the diagonal warp threads gives the pattern a corded effect, which is further emphasised when the warp is in light and the weft in dark colours.

WIDOWS' LAWN.—A linen muslin, very clear and even in texture.

WILTON CARPET.—See Chapter IX.

WINCEY.—Low qualities of all-wool textures and of wool and cotton.

WIGAN CLOTHS.—Good qualities of grey cotton goods made in the district named.

WOLSEY.—“All-wool” materials.

WOOL EXTRACT.—See Chapter II.

WOOLLEN YARNS.—Wool spun yarns without any attempt to keep the fibres parallel. Yarns not “combed.”

WORSTED YARNS.—Wool spun yarns, in which the fibres are combed parallel. In woven fabrics the threads appear more distinct than woollen threads for producing patterns.

WORSTED CLOTHS.—Fine woven and high class “new wool” fibre cloths suitable for suitings, costumes, &c. The worsted yarns are finer and closer set in the warp and weft than will be the case for woollen cloths. Worsted cloths are not “felted” like many of the woollen cloths.

ZEPHYRS.—Lightly-constructed coloured woven cloths, well finished in the pure state, principally woven with fine cotton yarns, and closely woven. Used for blousings and shirtings. There are also silk and cotton woven zephyrs and woollen zephyrs.



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